

THE DOCK & HARBOUR AUTHORITY

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Editorial.

The Port of Trieste.

Trieste, the well-known Italian seaport, which is situated in the northern extremity of the Adriatic Sea, was in pre-war years the property of Austria, but at the outbreak of the Great War its shipping activities were transferred to Fiume, and eventually the Port of Trieste became the property of Italy.

The opening of the Suez Canal first induced Trieste to increase its facilities and accommodation for the needs of shipping, as more traffic was coming through the Mediterranean via the Canal.

These new facilities were, of course, terminated during the course of the war, but since the war Trieste has advanced step by step until to-day its trade has increased tremendously, the figures for 1928 reaching nearly 5,000,000 tons imports and exports.

At the present time Trieste has a total quayage of 13,202 metres, and further projections are still in course of construction, so that it can be taken for granted that even the figures for 1928 will in the near future be surpassed. It is estimated that when the figures for 1929 are issued there will be an increase of 500,000 tons.

With regard to facilities at the port, there is a total warehouse capacity of 432,794 square metres, which together with an open storage space of 133,030 square metres make a grand total of 565,824 square metres of storage space.

The port is equipped with 87 hydraulic cranes and 38 electric cranes.

The policy of the Fascisti Government with regard to the Port of Trieste is mainly accountable for its great success and for the furtherance of activities there.

The Port of Trieste forms the subject-matter for this month's Supplement, and an illustrated article on the activities of the port and its further advancement is given on another page.

London's Increasing Shipping.

The increase in London's shipping which has been taking place for some years still shows progress. The figures for the half-year ended 30th September last indicate that the current twelve months will break even the record for the previous twelve months, as a further increase of 1,826,314 net register tons has taken place over the corresponding six months of last year.

No other port in the United Kingdom approaches the London figures. Last year over 55,000,000 net register tons entered and left London, being over 61 per cent. in excess of the next largest port.

The shipping which entered the docks of the Port of London Authority for the month of September was 1,529,485 net register tons, a record for any single month in the history of the docks.

Although shipping figures are not always a reliable index to trade, the goods landed and warehoused with the Authority show an increase of 6 per cent. over the corresponding six months of last year.

Big Improvement Scheme.

Recently a Mersey Docks and Harbour Board deputation placed before Lord Privy Seal a dock improvement scheme of great magnitude involving a total of about 1½ million pounds. The contemplated developments, it is understood, affects both sides of the Mersey, but exact details are not available, as the matter is confidential to the Board at present. The scheme of dock developments is to be put into operation at once by way of bringing the old section of the great estate into line, so far as modern equipment is concerned, with the great Gladstone Dock, which is the last word in dock engineering. New

sheds, new equipments and various other developments have all been worked out in readiness. Improved facilities for the coastal trade and small vessels are to be provided and road transport to and from the docks is to be speeded up. Plans for the work are ready to be put into operation.

Dockside Telephones.

The Hull Corporation Telephones Committee has decided, as an experiment, to instal six transportable dockside telephones at various berths in the Hull docks. It is intended that these telephones shall be taken on board any ship as she docks at one of these berths. She will then be in communication with, and can be called up by, any number on the telephone system of Great Britain, and, if necessary, can reach the international lines also. The telephone will be removed as she leaves the berth.

Hull is the second British port to adopt this desirable facility, which will considerably aid arrangements for loading cargo. Dockside telephones have been in successful use in Tyneside for about two months.

Czechoslovak Free Zone at Hamburg.

The lease for 99 years of an area within the Hamburg free port to Czechoslovakia for inland traffic to and from Czechoslovakia has now become effective in accordance with the decision pronounced by the Commission appointed for the purpose under the Peace Treaty. The total area comprises upwards of 31,000 square yards of territory with a water frontage of approximately 650 yards, and the lessee acquires a right to use the adjacent water area for transshipment purposes. The up-stream Elbe traffic from Hamburg consisted in 1928 of 4,742,000 tons of goods, of which 657,000 tons were for Czechoslovakia. Of the total downstream traffic amounting to 3,650,000 tons, 671,000 tons were Czechoslovak goods in transit overseas.

Manchester Ship Canal.

The Manchester Ship Canal Company has forwarded us a summary of traffic receipts for the month of October, the approximate figure being £110,872, which is only £658 less than October, 1928. The total receipts for the first ten months of this year were £1,190,680, as against £1,170,492 for the corresponding period of last year, and £1,225,812 in 1927. Almost throughout the year there has been a tendency towards heavier ship canal traffic, and it is expected this will continue until the year is out.

Power Generation for Docks and Harbours.

In the November, 1929, issue of this journal there appeared on page 4 an article entitled "Power Generation for Docks and Harbours—Economies of Steam Accumulators," and inadvertently the explanation of the key letters shown in Fig. 1 were omitted. They are as follows:—

FIGURE 1.

- (A) Accumulator.
- (B) Non-conductive lagging.
- (C) Outer covering for lagging.
- (E) Non-return valve on pipe circuit (O).
- (F) Steam distribution pipe.
- (G) Steam nozzles on distribution pipe.
- (H) Sleeves round nozzles (G) to promote water circulation.
- (I) Non-return valve on steam outlet from accumulator.
- (K) Nozzle for steam outlet from the accumulator.
- (L) Water level gauge.
- (N) Pipe connecting boilers to control valves.
- (O) Pipe for surplus steam to accumulators.
- (P) Pipe for low pressure steam supply to works.
- (V1) Control valve on pipe (N).
- (V2) Control valve on pipe (P).

Developments at Italian Ports.



The New Completed Warehouses employed for Export Trade on the Caracciolo Mole at Genoa.



First Nine New Electric Elevators built at the Ansaldo Works at Sampierdarena, which have been placed in the Vittorio Emanuele Dock in the Port of Genoa.

Developments at Italian Ports.

SHIPPING at Italian ports continues to increase uninterruptedly, as can be seen from the statistics relating to the period from January to September, 1929. The number of ships which arrived at Italian ports during this period numbered 119,753 against 120,726 during January to September, 1928, but their net register tonnage increased from 51,886,020 tons to 55,936,323 tons, the volume of goods carried from 18,611,017 tons to 19,917,507 tons, and passengers landed from 3,515,663 to 3,596,533. The volume of goods exported has increased from 4,839,899 tons to 5,239,590 tons, and passengers leaving from 3,483,748 to 3,554,166.

It is interesting, however, to follow the development of imports of the most important goods at the main Italian ports during the period in question:—

	Coal Tons.	Cereals Tons.	Cotton Tons.	Phosphates Tons.
Genoa	2,274,827	856,921	135,909	155,577
Savona	1,218,917			4,962
Leghorn	847,723	78,399	2,410	49,042
Civitavecchia	471,702	65,511		7,540
Naples	713,959	306,671	6,984	2,084
Palermo	224,608	27,472		5,697
Catania	120,964	61,523		
*Trieste	355,108	151,842	40,433	
Fiume	36,576	1,378	234	30,233
Venice	1,007,658	288,290	33,023	106,231
Ancona	279,899	23,197	199	42,237
Bari	97,675	49,670		
Total	7,649,616	1,910,874	219,192	403,603

* Figures up to July, 1929, only.

Now, if it is considered that total imports of coal into Italy have reached during the above-mentioned period about 8,000,000 tons, and the imports of wheat 2,100,000 tons, it will immediately be seen what importance the organisation of Italian harbours has upon the nation, as they are handling practically 95 per cent. of the imports of most important raw materials. This explains why the Fascisti Government is continually alert to always improve the position of these harbours. New improvements have been carried out, particularly at Venice, where the extraordinary administration of the port has ceased and the former Royal Commissioner Admiral Adrioli Stagno has been appointed as president of the Harbour Board, including the overhauling of warehouse B.3 having an area of 920 square metres and measuring 52.50 metres in length and 20.80 metres in breadth; the construction of warehouse F. with an area of 9,500 square metres measuring 158.50 metres in length and 30.30 metres in breadth; and the increase of unloading facilities, etc.

New quays have been inaugurated at Ancona, while, after having provided the necessary funds for the enlargement of the Port of Bari, the Government has issued a decree creating a special organisation to favour samples exhibitions in Bari with the object of attracting the Levantine markets towards this port, with a capital of 4,500,000 lire to be subscribed partly by the province and partly by the municipality of that town. The success of the activity of the Bari business community has already been noticed since several foreign lines among which there are Scandinavian, British and American Lines, which are trading with the Near East and the Black Sea ports, that have made Bari the regular Italian port of call of their steamers.

On the other hand, it is officially stated that the Government has made an allowance of 8,800,000 lire to undertake quayage works in the port of Reggio Calabria in Southern Italy.

In view of these enlargements the Italian Government has intimated to the railway conference, which has been held at Warsaw, and where it has been decided to establish the Berlin-Riviera-Naples express to favour connections from Germany with steamers to Egypt at that port, while private enterprises controlled by Belgian interests have undertaken the enlargement of the oil fuel stations in the Naples district.

The question of the development of transit trade through Italian ports continues to attract the attention not only of Italian business communities, but also of foreign organisations in Italy, and the following schedule, including the cost of unloading, handling and railway shipments of cereals compiled by the Swiss Chamber of Commerce, in Genoa, is of interest:—

To	From Genoa. (Swiss Francs, per ton).	From Marseilles.	From Antwerp or Rotterdam.
Basle	34.25	32.30	15.97
Berne	32.25	36.90	26.17
Bellinzona	22.51	41.80	31.47
Geneva	33.65	25.30	25.67
Lucerne	41.50	43.10	—
Locarno	22.91	42.00	31.87
Lugano	22.07	42.10	32.07
Zurich	32.71	40.00	24.57

In Italian business quarters it is emphasised that these figures show that Genoa has to contend much more with competition from Antwerp and Rotterdam than from that of Marseilles, as

although the distance from the two North Sea ports is further than the distance from Genoa to Switzerland, carriage expenses are much lower. It is felt that the development of Swiss trade through the port of Genoa depends, therefore, upon the possibility of cutting down carriage expenses.

The western part of the building of the Maritime passenger station in Genoa, which will be the largest in the Mediterranean and one of the largest in Europe, has been completed, and passengers are already landing there.

These improvements have attracted considerable foreign trade to Genoa, as is proved by the active shipments in transit from Spain to the Near East and the Black Sea ports, and from territories beyond the Suez Canal to Spain and North Europe, as even the Marittima Italiana which operates a monthly sub-ventioned service to Dutch East India is taking at Suez goods from the Far East carried by the steamers of the Lloyd Triestino.

Under these circumstances it is of interest to consider the following figures regarding the development of shipping at Italian ports during the first three quarters of 1929:—

	Goods unloaded Tons.	Goods loaded Tons.
Savona—		
1929	1,412,081	65,325
1928	1,049,183	61,411
Genoa—		
1929	5,219,219	761,204
1928	2,285,801	691,970
Leghorn—		
1929	1,165,980	298,275
1928	1,196,979	283,347
Civitavecchia—		
1929	663,454	62,370
1928	616,898	58,124
Naples—		
1929	1,491,714	252,400
1928	1,490,925	256,885
Brindisi—		
1929	61,425	14,106
1928	52,945	12,690
Bari—		
1929	249,238	60,489
1928	261,497	42,502
Ancona—		
1929	414,766	58,293
1928	609,507	23,679
Venice—		
1929	1,937,174	299,375
1928	1,828,048	218,340
Trieste—		
1929	1,706,303	651,820
1928	1,443,678	586,258
Fiume—		
1929	376,040	242,958
1928	358,055	271,752
Messina—		
1929	258,917	78,546
1928	298,015	81,270
Catania—		
1929	368,349	131,700
1928	404,321	117,367
Siracusa—		
1929	65,627	48,792
1928	78,586	47,598
Palermo—		
1929	549,804	112,451
1928	472,741	107,301
Cagliari—		
1929	176,163	188,806
1928	201,341	206,943

A general glance at these figures shows a general progress, as even where the volume of the goods unloaded shows a decrease, most likely due to the fact that wheat imports have diminished by about 500,000 tons in three quarters, the increase of exports, due to the augmentation of the production of the country, has neutralised the downward tendency of imports, while there is no doubt that the volume of trade attained at Venice represents a successful record and that shipping at that port during 1929 will even exceed pre-war figures. Another point worthy of notice is the development of exports from the various Adriatic ports, particularly as far as Ancona, Bari and Brindisi are concerned, as it shows the progress made in the inter-Adriatic trade in consequence of the large number of communications which have been established with the other coast of this Sea and in general with Albania and Greece, and thanks to the increased harbour facilities.

Completion of the Work in Harbour No. 2, Bremen.

The new sheds 15 and 17 in Harbour No. 2 are now completely constructed. They are 396 and 384 metres long and 66 metres in depth, entirely made of iron resting on a cement foundation. The height in the middle, excluding the upper lights and foundation, is 6 metres. A platform runs round the sheds; this is 4 metres wide on the water side.

Irish Harbour Matters.

Waterford Port Finances.

PRESIDING at a special meeting of the Waterford Harbour Commissioners, held last month for the purpose of fixing rates on goods during the coming year, Mr. Cassin, Vice-Chairman, said that they had hitherto succeeded in maintaining and improving the port by dividing the expense between shipowners and merchants. In 1928 ships paid £14,798, while goods paid £14,624. Dues on ships had been reduced, and the best they could expect this year was that their income would be equal to the necessary expenditure without any surplus. The rates on goods and dues on ships, he said, compare favourably with those ruling at Cork and Dublin.

On the recommendation of the Quay and Finance Committee it was decided that rates on goods as at present levied be fixed and declared for the year commencing 1st January, 1930, in accordance with Section 10 of the Waterford Harbour Act, 1919, and that application be made by the Free State Ministry of Industry and Commerce for power to continue the 50 per cent. additional dues on ships under the Expiring Laws Act, 1926.

Another matter of importance is the tender from the Tilbury Contracting and Dredging Co., Ltd., for deepening the ford channel which was originally cut by the Harbour Commis-

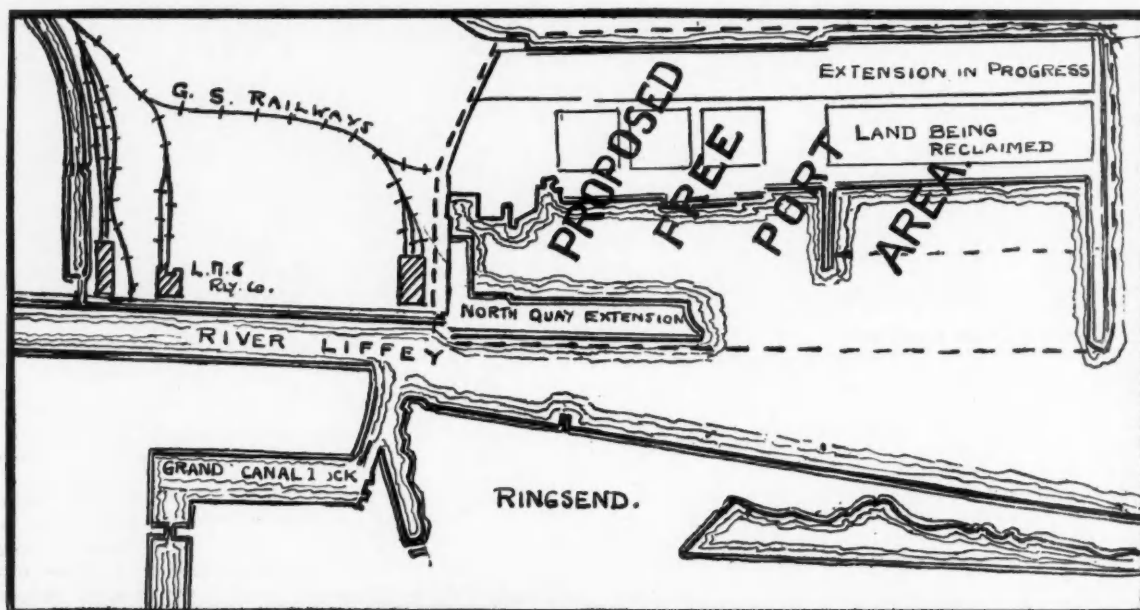
sioners in improving the Commissioners' dredging plant. As this outlay will have some effect on the rent to be demanded for sites that will thus be made available on the river side, members of the Board are asking for details.

Mr. J. Price, the Harbour Engineer, has stated that in this respect the Tivoli scheme has provided the Board with cheaper means of disposing of mud dredged from the river than conveying it to sea as in former years. Therefore, although machinery and pumps have been acquired for the purpose, he contends that the dredging costs have been reduced considerably, and in leasing sites, this aspect must be taken into account.

In his annual report Mr. Price states that the cost of maintenance of dredging, inclusive of pumping for the year, was £20,371 for an output of 519,777 tons or 159,777 tons over the standard. This would cost 9.4d. per ton.

Proposed Repeal of Dublin Port and Dock (Bridges) Act.

On the plea that there is no congestion of traffic at the North Wall, and that tenants of certain transit sheds should be prevented from blocking part of the roadway with goods, an agitation is being worked up to bring about a repeal of the Dublin Port and Dock (Bridges) Act, 1929, which gives power to build a transporter bridge across the Liffey near the Custom House.



This Map shows the Area at the Eastern End of Dublin's Dockside, which is mentioned below as the suggested Site for a Free Port. The Total Area of the Port would be 275 Acres and it would include all the most modern Quays and Berths, as well as the newest Equipment.

sioners in 1854. From that date up to recent years the port was of sufficient capacity for ships trading with it. Thirty years ago, overseas steamers with maize to the port were 2,500 tons cargo; to-day 5,000 tons is a small cargo, and the average size is 7,000 tons.

Coastwise tramp steamers have been 200 to 500 tons; to-day 400 tons is small, and many coastwise steamers regularly trading with the port are 700 tons, while some Clyde shipping steamers are about 1,800 tons capacity.

The ford which it is proposed to deepen in part is rock, and therefore not only shallow but dangerous. As the river at this point is narrow, no ship's master will chance the ford if water is scant. This essential work will cost £20,500, and as the Commissioners have £30,000 realisable assets, it has been decided to go on with the work.

Cork Harbour Finances.

According to the report which has been published for 1928, the Cork Harbour Commissioners have had a "record" year. This must be gratifying to the Chairman, Mr. Richard Wallace, during his first year of office, and should also encourage the Commissioners to go on with the works of improvement which they have taken in hand. While the Board's expenditure under all headings exceeded their income by £57, not only have large sums been spent on necessary port improvement schemes, but a sum of £3,653 has been carried to sinking fund and an additional amount of £4,139 been put aside for depreciation. It appears that the sum spent on the Tivoli reclamation scheme is £15,298, plus £2,696 on the construction of an approach, while a good deal has also been

Dublin as the Site of a Free Port.

Mr. Joseph Mallagh, engineer to the Dublin Port and Docks Board, in the course of an address to the Dublin Rotary Club, made a strong case for a free port or a free zone in Dublin. The free port enabled a trading community within a tariff protected nation to increase its share of the trans-shipping business. The safeguarding of State revenue was, he said, provided for, and the fears of evasion of duty and unworkability were groundless. It was found, indeed, that the principles of the free port, as strictly applied to foreign trade, lent themselves to the development of local trade and the creation of consignment markets. The proposal of a free port in Dublin was made in the direct interest of the domestic trade, keeping clearly in view that increased protection was being more largely resorted to by almost all countries, and that eventually the existence of such a free zone might become the instrument of creating and fostering a successful foreign trade.

The problem was, how to alter conditions at the port of Dublin, so that it might become increasingly popular and attractive to producers, importers and shipowners.

A free port, he said, would (1) abolish the delay and annoyance due to Customs entry and clearance of both ship and cargo; (2) tend to equalise the volume of incoming and outgoing cargoes and hence lower freight charges; (3) cut down terminal charges owing to the concentration of work and the expedition in handling and storing; (4) by handling traffic economically and expeditiously, encourage and give impetus to surplus production, and thus benefit shippers, consignees and consumers; (5) save interest on large sums of money

Irish Harbour Matters—continued.

by evading the tying up of funds for Customs duties while goods are held in warehouses; (6) stimulate the growth of exporting firms and enable them to hold goods for set periods without the payment of duty.

If the ship is within a free port, no red tape need cause delay. Work can begin at once (day or night) once the ship is alongside. Cargo can be discharged in any order that is convenient, and the ship is free to reload for another port, if cargo is offered, days before it would have been cleared in a Customs port. The immediate result of such expeditious handling would be that lower freights would be accepted to and from the free port of Dublin than to competing ports like Belfast, Liverpool and Glasgow.

If the cargo contained dutiable goods, these could be dealt with by the merchant at an economic cost and warehoused until the markets were favourable, passing then either through the Customs for home consumption or re-export to foreign countries.

Most of the ports which have free zones are controlled in a similar manner to Dublin Port—by a Board on which various interests are represented. The free zone is usually controlled by a limited company the directors of which represent specific interests, viz.—the Chairman of the Custom or parent port is usually the Chairman of the Company, the state is represented; municipal, banking and shipping interests are also represented.

Rates in "free" and Custom ports are usually identical. If a free port is to materialise, one of the matters in which State assistance will be necessary is in connection with the financial arrangements in connection with the Lombardy warrants of

the Warehousing section. Here provision must be made to secure advances to the extent of 60 to 75 per cent. of the value of warehoused cargoes at a reasonable rate of interest, as it is essential that importers shall keep their capital resources as liquid as possible.

With regard to the finance required for the necessary works and equipment, this has to a large extent been provided by the Port Board, but much special work would be required.

The Port Board, he added, has provided an excellent framework for a free port. It remains for the Government to investigate it fully.

The existing facilities and equipment of the suggested free port area were given by Mr. Mallagh as follow:—

Water area, 123 acres; land area, 152 acres; a total area of 275 acres. Occupied area, 52 acres; undeveloped sites for factories, 48 acres; area of quays, roads, wharves, etc., 52 acres; berthage, 6,000 lineal feet; depth of water (at standard low water), 35-ft. maximum, 22-ft. minimum; rail sidings (double track), 2 miles; 12 cranes from 2 to 4 tons capacity; 1 crane of 100 tons capacity; transit sheds, floor space, 17,500 square feet (capacity, 2½ million cube feet); ship repairs (graving dock), 1; ship repairs (slipways), 2.

Cork Harbour Board.

Mr. Richard Wallace, outgoing Chairman, has been unanimously re-elected Chairman of the Cork Harbour Commissioners. Capt. Collens, Capt. O'Regan, Messrs. A. C. Horne, C. C. Mercer, Richard Wallace and D. F. Doyle, have been appointed members of the Pilotage Committee.

*Canadian Notes.**New Bridge across the Detroit River.*

In a recent announcement by the Companies responsible for the construction of the "Ambassador Bridge" across the Detroit River from the City of Detroit, Michigan, to Windsor, Ontario, it was stated that opening for traffic would take place on November 15th. The new bridge, costing \$20,000,000, is the first to be built across the Detroit River. It is 7,400-ft. in length, the distance from terminal to terminal being approximately 9,000-ft., or almost two miles. The central span—the longest suspension span in the world—is 1,850-ft. long, being supported on towers 363-ft. high. The bridge itself is 152-ft. above the river, and provides for five lanes of traffic. It is estimated that 5,000 motor cars per hour will be able to cross the bridge, construction work on which was begun in 1927.

Canadian Harbour Developments.

The Harbour Commission at Three Rivers, Quebec, announces the award of contracts for new works at the port, costing \$2,850,000. The largest of these contracts, for the construction of new wharves and quay walls, goes to the Northern Construction Company and J. W. Stewart, Montreal.

Three Rivers is a growing port at the junction of the St. Maurice and St. Lawrence Rivers, being the outlet for a series of immense pulp and paper, electro-chemical and electro-metallurgical industries on the St. Maurice River.

New Canadian Lake Terminal.

The erection of the new 5,500,000 bushel elevator one mile east of the town of Prescott, Ontario, has now been begun, and completion is expected by August 1st, 1930. The contract includes the construction of about 6,000-ft. of concrete wharf in addition to the elevator bins, workhouse, track sheds, business offices, garage, machine shop, drier building and boiler house, etc.

The elevator itself will occupy a central pier protruding out into the St. Lawrence River, while two slips on either side will be provided by the erection of two similar piers. The great elevator will be 1,345-ft. in length, while the width of the pier on which it is to stand will be 110-ft. The height, to the top of the bins, is 85-ft., while the foundations go down another 19-ft. The working unit will extend along the top.

This immense structure, provided for the unloading of grain from Fort William, Port Arthur and other Upper Lakes ports will have 159 circular concrete bins and 212 inter-space bins, divided into four sections, and to be fed by four travelling and one stationary marine tower, which will be used to discharge the lake steamers. The elevator will be three bins wide, the diameter of each being 20-ft. 6-in.

Provision is made for the accommodation of two large Upper Lake freighters alongside the elevator at the unloading dock, as the longest of these—the s.s. "Lemoyne"—is 621-ft. in length, while the length of the wharf face is 1,345-ft. The four travelling marine towers can handle the unloading of two of

the big freighters efficiently, though another vessel may be discharged at the end of the pier by means of the stationary unloading equipment.

Four of the ordinary canal size boats which ply to Montreal will be accommodated at the loading berth on the upstream side of the main elevator pier. Vessels waiting to discharge or load will be accommodated in the lake boat or canal vessel slips provided for this purpose. As it is expected that large quantities of the grain will move by rail over the 110 mile haul to Montreal, special provision has been made for four sets of tracks connecting with both the Canadian Pacific and Canadian National Railways.

Messrs. C. D. Howe and Company, consulting engineers of Port Arthur, Ont., designed the elevator and will superintend its erection. The completion of the job is timed to synchronise with the opening of the new Welland Ship Canal next year, when the big Upper Lake grain boats, ranging in size up to the s.s. "Lemoyne," will be enabled for the first time to cross Lake Ontario and discharge their cargoes at Kingston and Prescott, for shipment by rail to Montreal or in smaller vessels down the St. Lawrence.

*Belfast Harbour Notes.**Belfast Port Traffic.*

At a meeting of the Belfast Harbour Board on the 5th November the report of the harbour master showed that 466 vessels arrived at the port between 13th October and 2nd November as follows: Coastwise and cross-Channel, 419; foreign, 33; non-trading, 14. The total tonnage of vessels which arrived from 1st January to 2nd November was as follows: Coastwise and cross-Channel, 2,153,996, an increase over the corresponding period last year of 222,474; foreign, 547,602, an increase of 3,447; non-trading, 74,062, an increase of 20,536; total, 2,775,660, an increase of 246,457.

Effect of De-rating.

The full amount of rates paid annually by the Belfast Harbour Board to the Corporation is £10,000, so that the amount of relief received under the De-rating Acts from the Government is £7,500.

The items selected by the Harbour Board for relief are: Cattle, sheep, lambs, pigs and potatoes exported through the harbour; textiles imported, flax, hemp and tow; linen and linen yarn, and cotton and cotton yarn, exported.

The rebate in connection with shipbuilding applies to the following: shipbuilding, launching dues, lying-up rates on vessels fitting out or undergoing repairs; rates for the use of the 120-ton electric crane for ships fitting out or undergoing repair.

The rebate is 50 per cent. for animals and agricultural produce, and 25 per cent. for the other items.

Royal Research Ship "Discovery II."

THERE was launched from the shipyard of Messrs. Ferguson Brothers (Port Glasgow), Limited, on Saturday, 2nd November, the Royal Research Ship "Discovery II.", built to the order of The Crown Agents for the Colonies for the "Discovery" Committee.

The Launching.

The christening ceremony was performed by Mrs. J. O. Borley, wife of Mr. J. O. Borley, of the "Discovery" Committee.

Amongst others, the following were present at the launch:—E. R. Darnley, Esq., M.A., B.Sc.; Sir S. Harmer, K.B.E., Sc.D., F.R.S.; Professor Graham Kerr, F.R.S.; Sir F. Fortescue Flannery, Bart., M.Inst., C.E.; H. G. Maurice, Esq., C.B.; Mr. and Mrs. J. M. Wordie, Mr. and Mrs. J. O. Borley, S. Kemp, Esq., Sc.D.; Commander W. H. Carey, R.N. (retired); H. Horsburgh, Esq., A.M.I.C.E.; F. H. Harper, Esq., O.B.E.; E. A. Nattriss, Esq.; A. Harker, Esq.; M.I.N.A.; Eng. Lieut.-Commander W. A. Horton, R.N. (retired); Professor G. W. Gregory, F.R.S., LL.D.; Provost and Mrs. Dick; A. P. Orr, Esq.; H. R. Cotterill, Esq.; Daniel Fife, Esq.



R.R.S. "Discovery II."

General Description.

The following is a general description of the "Discovery II." The dimensions are:—Length overall, 232-ft.; length between perpendiculars, 220-ft.; breadth moulded, 36-ft.; depth moulded, 20-ft.

The vessel is designed for research work in connection with Whaling, Hydrographic and other Scientific Investigations.

The bulk of the vessel's service is expected to be in Antarctic Seas where ice conditions exist.

The forward part of the hull and all fore and aft in way of load line has double plating and special ice stiffening, and cork insulation is fitted throughout the whole accommodation of the vessel.

The vessel is rigged as a fore and aft schooner and has crows nest and searchlight platform on the foremast. The searchlight can also be arranged on stem head when desired.

She has a straight stem, the forging being rabbeted for protecting the plate ends when working in ice. The stern is of the elliptical counter type. The main or upper deck extends fore and aft and is of steel sheathed with wood. A top-gallant forecastle and raised poop, also sheathed with wood, are fitted. The 'tween deck extends all fore and aft except in way of machinery space.

Under 'tween decks she is fitted with double bottom throughout, part consisting of divided oil fuel tanks carrying over 300 tons of oil which gives the vessel a large range. Large store rooms are fitted in the lower hold for lengthy voyages.

The accommodation for the scientists, officers and crew is on the 'tween decks, the scientists and officers being arranged forward of machinery space, the petty officers are accommodated aft of machinery space and the crew immediately abaft the fore peak bulkhead. The laboratory work room and dark room are arranged between the scientists' rooms.

The following are on main deck:—Under forecastle head arranged with store rooms, crew's lavatories and W.C., crew's galley, drying room, carpenter's shop, etc. Chemical and biological laboratories are fitted in steel house forward of boiler casing, also complete arrangement of W.C.'s and lavatories. All the windows in deckhouse are Stones L.1 pattern.

The main galley is fitted at forward end of boiler casing, both galleys have the latest type of oil fuel ranges.

Steel houses on each side of engine and boiler casings fitted up as scientific stores, rough laboratory, ship's office, navigator's stores, petty officers bath rooms, lavatories, etc.

A large trawl winch is fitted on after main deck in a steel house with special ball bearing indicating fairleads. Hatches with skylights are fitted fore and aft on this deck. The boat deck has a large ward room at forward end with pantry at aft side—this ward room is panelled in light oak.

There are two lifeboats, two Admiralty type whale boats, a motor boat, a dinghy and a pram on boat deck.

The sick bay and wireless room are at after end of boat deck.

The navigating bridge is arranged above the ward room and has strongly-built teak house, containing accommodation for captain, together with chart house and navigator's office. The flying bridge is arranged over the roof of chart house and has the telegraphs, standard compass, speaking tubes, Semaphore and direction finder all neatly arranged.

Deck Machinery.

The windlass is fitted on the main deck under forecastle head and drives a capstan on forecastle deck. Telegraphs are fitted between forecastle deck and windlass.

A steam and hand-steering gear of Wilson-Pirie type by Hastie, of Greenock, is fitted on rudder head, worked from navigating bridge, by Brown's telemotor gear. The large trawl winch already mentioned. Four deep and shallow water steam-driven reels, constructed by the builders, are fitted along the port side. A steam-driven Lucas Sounding Machine is fitted on the forecastle head. Hydrographic davits are fitted to each reel.

Water service connections with fire hose provided on all decks.

Electric Installation.

The vessel is lighted throughout by electric light and fitted with electric bells.

There are two generators, one 27 k.w. and one 10 k.w. Electric fans are provided for use when vessel is working in hot climates.

The wireless installation consists of 1½ k.w. Marconi short wave transmitter, also a Marconi 1½ k.w. quench gap set with emergency batteries.

Refrigerating plant and cold chambers are fitted. The vessel is fitted with a full installation of steam heating with all piping carefully insulated.

Propelling Machinery.

The propelling machinery consists of a set of triple expansion three crank balanced engines working at 200 lb. pressure per square inch. All the pumps are separate and consists of Weir's air pumps and feed pumps, Allen's centrifugal circulating pump, with double engines, Kirkaldy's evaporator and distilling plant, Admiralty type, fresh water pumps and bilge pumps. All valves throughout are of gun-metal.

The two electric generators are arranged at front of engines.

The propeller is of the built type with bronze blades and spare blades are provided.

The oil retaining apparatus for stern tube is the "Newark" latest type.

The engine room also contains electric and other apparatus for scientific purposes.

There are two boilers placed side by side, fitted for burning oil fuel on the Wallsend Howden Forced Draught System, with two complete pumping units.

The funnel is double galvanised on outer casings.

On the starboard side of the engine room a platform is fitted on the 'tween deck level with water-tight doors at bulkheads. This platform provides a passage from fore and aft of

Royal Research Ship "Discovery II."—continued.

ship below main deck and will be found of great service in bad weather.

A complete work shop is fitted in separate compartment in engine room with lathe, drilling machine, slotting machine and grinders, all driven by electric motors.

The whole vessel is of exceptionally strong construction, well and comfortably arranged and fitted out for her special work.

Classed to Lloyd's Special 100 A.1 for ship and machinery with special notation strengthening for navigation in ice. The machinery also complies with Admiralty Standard of Tests.

Constructors and Architects.

The vessel with propelling machinery has been constructed by Messrs. Ferguson Brothers (Port Glasgow), Ltd., who have had a large experience in the building of special type steamers. She was launched with engines and boilers completely fitted on board.

The Consulting Engineers and Naval Architects for the vessel are Messrs. Flannery, Baggallay and Johnson, Ltd., 9, Fenchurch Street, London, E.C.3.

*Mersey Docks and Harbour Board.**Annual Report for Year ended July 1st, 1929.*

AT a meeting of the Mersey Docks and Harbour Board held on November 7th, 1929, the annual report was submitted by the chairman (Richard D. Holt, Esq.), who said:—

"Gentlemen,—The accounts and the Dock Engineer's report for the year ending July 1st, 1929, are before you, and I now take the chairmen's privilege of offering a few remarks upon them.

"Substantially, the period of large construction at the Gladstone Docks came to an end in the previous year, but a little work, such as the erection of the shed on the west side, was only completed in October, 1928, and the demolition of the Seaforth Battery and erection of the wind screen are not yet quite complete. These docks are now fully occupied and may be regarded as having passed into the ordinary equipment of the port.

"The new entrance to the Alfred Dock was opened in July, 1928, but I dealt with that event when addressing you a year ago. Since then the inner passage and the dredging in the river have been completed, with great advantage to the deep drafted steamers which load in our Birkenhead system.

"The most important new work undertaken this year is the modernisation of the Princes Dock to suit the requirements of the Irish trade. This has been done in consultation with the shipowners trading to Belfast and Dublin, and it is confidently expected that the facilities given will help them not only in their growing passenger traffic but in making Liverpool a better centre for the distribution of merchandise. The sale of the Clarence Dock to the Corporation of Liverpool for the purpose of erecting an electrical super-power station has made necessary the provision of further accommodation for the coasting trade and facilitated the financial provision for the work.

"Turning to the accounts—the revenue from ships shows an increase of £135,000 over that for the previous year, mainly due to the reduction in the harbour rates which came into force in May, 1928, and diverted to general revenue a considerable sum of money which would otherwise have gone to the Conservancy account, and to the increase in the foreign dock tonnage and wharf rates made in September of that year. The rates and dues on goods foreign inwards show an increase of £15,000 and on goods foreign outwards an increase of £6,000, but there was a loss of nearly £12,000 on coastwise dues resulting from the remission of dues outwards coastwise made on the 1st April last in anticipation of the derating relief. The total net increase in the revenue is £164,882 which, in addition to the sums I have already mentioned, includes the receipts from rents of property, dock traffic and warehouse surplus. The tonnage of vessels paying dock tonnage rates was 15,553,104 tons, an increase of 306,983 tons on the previous year and only 341,303 tons less than the figure for 1927, which was artificially swollen by the coal stoppage. Last year was our greatest year in tonnage in normal circumstances. The estimated weight of goods on which dues were paid was 14,422,000 tons as against 13,970,000 in 1928, an increase of 3 per cent. approximately. Three per cent. may not sound a very great thing, but it should be remembered that a regular increase of 3 per cent. per annum would double the trade of the port in 24 years.

"On the expenditure side there has been a small general reduction except on the item of rates and taxes, where we have had to provide the full amount of rates due for the year instead of the lesser amount required last year owing to the exceptional circumstances attendant upon the settlement of our dispute with the rating authorities, which I explained fully in my statement of a year ago.

"The net result is that we are able out of revenue to provide the full amount of our Sinking Fund and to contribute £6,000 to Fire Insurance, etc., in respect of the warehouses and

Mersey Cattle Wharf, £86,000 to renewals and depreciation, and £16,000 to the unappropriated receipts—a total of £208,000 as against the corresponding figure for last year of £130,000, an increase of £78,000.

"The site of the Clarence Dock was sold to the Corporation on the 26th March, 1929, for £339,744. Of this £152,899 has been credited to the Sinking Fund—being as nearly as we can ascertain from very ancient records the original cost of the property, and the balance has been credited to renewals and depreciation. This episode is interesting as it indicates that so long as the trade of the port and the prosperity of the boroughs in which the port is situated continue, and they are in fact the same thing, docks which are obsolete as docks acquire a site value equal to or greater than their original cost which was naturally incurred at the prices of 100 years earlier or thereabouts.

"During the past year bonds to the value of £2,763,525 fell due for renewal, the average rate of interest on which was £5 2s. 10½d. per cent. Of these £1,825,177 were renewed at an average rate of £4 18s. 9½d. per cent., and new money to the amount of £1,553,786 was borrowed at an average rate of £4 18s. 9½d. per cent., partly to replace the bonds which were paid off and partly to pay for the new capital expenditure. All these borrowings took place at par, and the commissions paid amounted in the aggregate to £2,813. The corresponding rate for renewals last year was £4 19s. 11½d. per cent.—and for new money £4 19s. 4½d. per cent., so that the Board has been able to borrow at approximately 1s. per cent. less interest than in the previous year. The loan indebtedness has been reduced by £34,562, but owing to the difference in the cash in the bank there is an actual increased indebtedness of £11,085.

"Considering that we are living in a time when trade is not enjoying exceptional prosperity, and finance is not particularly easy, the record of our port for the year, both in trade and finance, seems to me by no means unsatisfactory, and to afford no ground of encouragement for those who are so fond of lamenting the decay of the Port of Liverpool. And I fear that these gentlemen will not get much comfort in the near future, for I am glad to be able to state that there has been a very marked improvement in our trade since the beginning of August.

"The construction of the training bank on the west side of the Crosby Channel has been completed, so far as appears to be desirable at present, and that on the east side of the Channel has been begun, and is making good progress.

"The Channels generally have remained in much the same condition as during last year.

"Mainly owing to the reduction in harbour rates, previously referred to, there is a slight deficit on the Conservancy Revenue account which still has a balance at its credit of over £50,000. With a small increase in the volume of shipping using the river it is probable that this account will show a surplus without any increase in the charges.

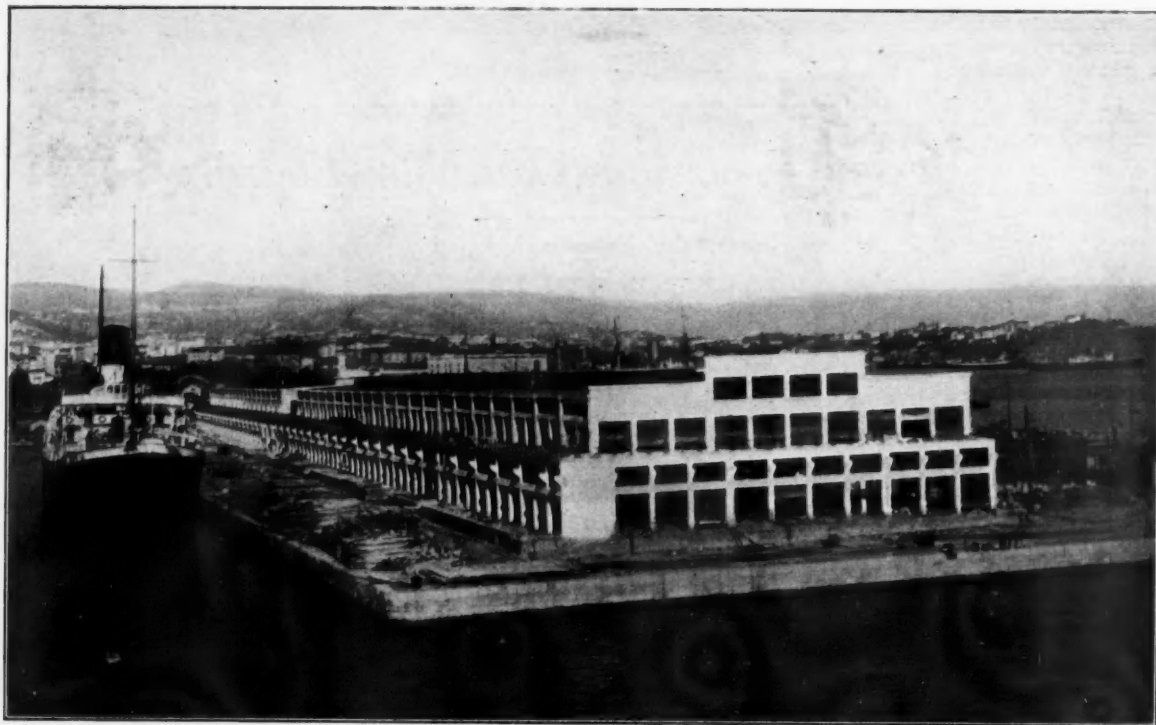
"Again, in your name, I have to thank the general manager and our staff for their loyal and efficient work, to which the increasing popularity of the port and the expansion of its trade are a very real testimonial."

Cargo Vessel for Greece.

The Acting British Consul-General at Salonica reports that a local concern desires to be put in touch with British shipbuilding firms likely to be interested in quoting for the construction of a cargo boat of 300 tons net. The firm would also consider the purchase of a suitable second-hand vessel.

Firms desirous of offering a British-built vessel can obtain details of the enquiry upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. Reference number A.X.8747 should be quoted.

The Port of Trieste.



New Warehouses on Mole VI. of the Porto Emanuele Filiberto Duca d'Aosta.



Porto Franco E.F. Duca d'Aosta: Warehouse No. 71, which is used for Cotton Trade.

The Port of Trieste and its Development.

ORIGINALLY the harbour of Trieste included the zone which runs from the Molo Venezia, in the present inner harbour, to the entrance of the new port known at present as the Porto Franco Vittorio Emanuele. The influence which the construction of the Suez Canal has had upon Mediterranean shipping in general has raised the idea of the enlargement of the Port of Trieste. The construction of the new port has been initiated by cutting into the coast running from Barcola off Trieste to the old port. In 1880 when Trieste was an entirely free city and goods could be imported and exported without Custom's supervision to and from the town, the Government of Austria entrusted the operation of the port to the municipality and to the Chamber of Commerce of Trieste, associated together in the Harbour Board. In 1886 the Austrian Government decided to abolish the free town regime and the creation of a free port where the new warehouses should have been built, and the operation of which was entrusted to the above referred Harbour Board. The transfer of the warehouses from the town in the port, etc., raised many technical difficulties and it has been since that period that the difference between hangars (warehouses where goods are stored only temporarily) and warehouses (buildings where goods are stored at the pleasure of the receivers or of the shippers) dates. In 1891 the decree regarding the abolishment of the free town regime was put into effect, but the difficulties which arose and the high tariffs which the General Bonded Stores Administration was forced to establish induced the Austrian Government to take over directly the operation of the port. The facilities which have been granted led to a congestion which forced the Austrian Government to terminate the construction of the new port, and to start the construction of the new port at San Andrea with the Moles V. and VI., while the construction of a third Mole (VII.) was in project when the European War commenced and the activities of Trieste were transferred to Fiume.

The present harbour of Trieste consists of the Porto Franco Vittorio Emanuele III., the Porto Doganale, the Porto Franco Duca d'Aosta, the lumber trade dock, the iron works quay and the oil refinery quay at Servola, with a total of 13,202 metres of quayage which may be employed by trade, and are distributed as follows:—

FREE PORT VITTORIO EMANUELE III.			
	Length Metres	Depth Metres	
Mole O.	626		
Quay I.	229		
Mole I.	498	6-00	
Quay II.	268		
Mole II.	477		
Quay III.	298		
Mole III.	497		
Quay IV.	299	8-50	
Mole IV.	372		
Mole IVa.	101		
		Total	3,665 m.
MOLE DOGANALE, INNER HARBOUR.			
III. Novembre Quay ...	203	7-00	
Audace Mole	506	8-70	
Mandracchio Quay ...	284	5-00	
Bersaglieri Mole	552	7-00	
Nazario Sauro Quay ...	125	5-00	
Pescheria Mole	309	5-00	
Pescheria Quay	112	5-00	
Venezia Mole	414	5-00	
Grumula Quay	162	3-00	
Sartorio Mole	263	3-00	
Sacchetta Dock	226	3/7	
Ottaviano Augusto Quay	198	7-00	
Flli. Bandiera Quay ...	160	7-00	
		Total	3,514 m.
PORTO FRANCO DUCA D'AOSTA.			
Fifth Quay (partial) ...	252	7-00	
Fifth Mole	869	8-25	
Sixth Quay	442	8-75	
Sixth Mole	1,148	8-30	
Seventh Quay	442	8-75	
Seventh Mole	1,896	9-00	
		Total	5,049 m.
Lumber Dock at Servola ...	649	7/10	649 m.
Iron Works Quay	225	7-00	225 m.
Oil Dock at S. Sabba ...	100	4/6	100 m.
		Total Quayage	13,202 m.

It should also be noted that since 1912 the former Lloyd Triestino Arsenal has been turned over to the Harbour Board Administration with an area of 77,600 square metres and 320 metres of quayage, but it has not had a large exploitation until recently.

All these moles and quays are fitted with warehouses and hangars. Hangars are built on the waterfront, while ware-

houses are built in the second range towards the gate showing the boundary of the free port's territories. The total area of the rooms which may be used by trade in the Port of Trieste includes 432,794 square metres and is as follows:—

PORTO VITTORIO EMANUELE III.			
	Square Metres	Total	
Hangars	46,919		
Warehouses	253,540	300,459	
PORTO DOGANALE.			
Warehouses	2,595	2,595	
PORTO DUCA D'AOSTA.			
Hangars	75,022		
Warehouses	30,913	105,935	
LLOYD TRIESTINO ARSENAL.			
Warehouses	23,805	23,805	*432,794
Open Storage Space ...			133,030
		Total Storage Space	565,824

* Special cold storage facilities are situated in the Molo F II. Bandiera and in the Porto Franco Vittorio Emanuele III.

These hangars and warehouses, and in general the whole Port of Trieste, is under the administration of the Azienda dei Magazzini Generali, created by the Trieste business community, with the intervention of the Government, which also operates the unloading facilities which are distributed as follows:—

A. PORTO VITTORIO EMANUELE III.			
83 Hydraulic Cranes of 1,500 kg.			
4 " " 3,000 kg.		Total	87 Hydraulic Cranes
B. PORTO DUCA D'AOSTA.			
20 Electric Cranes of 1,500 kg.			
10 " " 2,500 kg.			
4 " " 3,000 kg.			
4 " " 5,000 kg.		Total	38 Electric Cranes

In the zone of the former Lloyd Triestino Arsenal there is furthermore a 120-ton electric crane, and the General Bonded Stores Administration (Azienda dei Magazzini Generali) has a 25-ton electric pontoon, and a 40-ton steam pontoon, while in the interior of each warehouse, electric elevators have been provided to lift goods from one floor to another. In the new hangars, which have been built on the Sixth Mole in the Porto Duca d'Aosta the platforms on the front of each building are served with electric elevators to remove goods also from the outside.

The various parts of the harbour are connected by about 48,800 metres of rails, of which there are 10,976 metres on the waterfront, and while the Porto Franco Vittorio Emanuele is connected directly with the Central Railway Station, the terminal of the Trieste-Vienna-Prague line, the Porto Franco Duca d'Aosta is connected to the Campo Marzio Railway Station, the terminal of the Trieste-Munich-Amsterdam line. Both free ports are connected, on the other hand, one to the other through a double rail line running on the waterfront of the town.

Goods arriving by sea are stored free of charge, if the receivers desire, for three days in the hangars. The Azienda dei Magazzini Generali taking care—at the terms established by official tariffs—of the unloading of the goods from the ship's bottom on to the platform of the warehouse, and then the goods are brought into the interior of the hangars by means of electric trucks which, in Trieste, as at Venice, Genoa, etc., have replaced the old hand carriages. After the three days' time has expired and the receivers have sampled the goods, repaired the packing, etc., for which also the Azienda offers facilities at low cost, goods are loaded in the railway cars which are obtainable from the Azienda itself, or brought into the ordinary warehouses at the disposal of the receivers. The General Bonded Stores Administration is taking care of the railway cars, and every day regular delivery is made to the State Railways officials who are looking after the forwarding of the goods. The goods arriving by rail are subject to practically the identical procedure and the General Bonded Stores Administration takes care to shift them to the place required by the shippers by means of tractors which have replaced the animal traction. It is obvious to say that every operation undertaken in the territory of the free port is not subject to Custom's supervision, and goods maintain their foreign nationality if they do not enter the town of Trieste or if they are leaving the Kingdom of Italy as foreign goods shipments they are sealed by the Italian Customs's officials before leaving the free ports by train in order to ensure safe crossing to the Italian frontier station.

The Port of Trieste—continued.

As can be seen from this, the General Bonded Stores Administration (Azienda dei Magazzini Generali) is in full charge of the port and takes care of everything that has to be done within it, as even the place of the ships arriving is assigned by the Harbour Master in agreement with the Azienda. This policy enables an efficient operation of the harbour and avoids the loss of time and money to merchants and shippers.

That this is not a mere idea can easily be seen from the fact that, in spite of what has been said, after the assignment of Trieste to Italy in 1924, total trade and shipping at Trieste reached 5,841,430 tons of goods, against 6,147,274 tons during 1913. In view of these figures it is doubtful whether the countries of the former Austro-Hungarian Monarchy would have used Trieste after the armistice if Trieste is not their natural harbour and if Trieste had not maintained its pre-war efficiency and advantage.

towards its natural hinterland, which, from the economic point of view is always the same, but which is yet to be taken into consideration when considering the position of Trieste shipping after the war.

Is it the first time that developments like a war upset the position of a port, and, moreover, the position of a port, the rapid progress of which was to a great extent due to artificial and protective measures?

This does not mean that Trieste has not an excellent geographical position as the port of transit of all the countries of the former Austro-Hungarian Monarchy, and that this position may not be maintained even without the artificial measures of the Austro-Hungarian Government.

There is another point which has to be made clear, and this is that figures relating to Trieste trade which included before the war not only statistics referring to shipping in the true



General View of the Porto Franco Vittorio Emanuele III.

The problem of Trieste shipping is not as simple as one is inclined to think at first. As a matter of fact, from what has already been written it will be noticed that the origin of the real port of Trieste goes so far back as the opening of the Suez Canal, and it should be taken into consideration that even though the Suez Canal has influenced its development, it has been necessary to promote trade for the Austro-Hungarian Government to grant special reduced freight rates on shipments to and from Trieste, reduced import duties on the goods imported through the most important Austrian harbour, and large subvention to the steamship lines operated from Trieste. Since Austria controlled 75 per cent. of the railway which connected Trieste to Germany, and the whole railways connecting Trieste to the Tyrol and Trento district, while Italy controlled only 25 per cent. of the lines connecting Venice to Germany and Trento, it is evident that the Vienna Government could easily divert the trade which would have taken the route of Venice towards Trieste, but there was a factor of even larger importance, inasmuch as the Southern Russian provinces, and the Levant in general, was at that time economically dependent upon certain foreign countries, and, above all, there were few, or practically none—as in the case of the United States of America—direct steamship connections between these regions and the west. These circumstances favoured the transit of practically 50 per cent. of the trade with the Levant through the Port of Trieste, and this meant an important activity to the various lines and to the port in general. All the steps taken by the Austrian Government to artificially develop Trieste trade ceased after the armistice. The position of Venice's natural hinterland has improved, the political and economic disorder in South Russia in the immediate post-war period, the Turkish-Greek war, the revolutions in Syria and Palestine, the fight for the economic independence of those countries and the creation of direct connections with overseas markets as can be seen from the establishment of the direct line between Odessa and New York by the American export lines and the line between Stamboul and Kobe by the K. Line, are factors which have no connection with the alteration in the position of Trieste

meaning of the word as is generally done, but also includes figures relating to railway traffic to and from the hinterland. Taking figures relating to maritime trade only, in 1913 these reached 3,449,729 tons, against over 3,000,000 tons at Venice and not less than 7,000,000 tons at Genoa. Therefore, the position of Trieste should be considered on this basis.

However, the position of Trieste from a geographical point of view has not changed. The distance between Trieste and its hinterland is always the same. Trieste belongs to-day to a country which has larger resources than any other country of the Trieste hinterland, and having the interest to increase its economic expansion is interested in exploiting all the opportunities offered.

As a matter of fact, if one examines the development of Trieste trade and shipping during the period when, firstly, an agreement has made possible the re-establishment of the former reduced railway tariffs between Trieste and its hinterland; secondly, when conditions both in Central Europe and in the Levant have improved; and thirdly, when conditions of labour at Trieste and in general all over the country have become normal, thanks to the sound policy of the Fascisti Government, which has re-established public safety, etc., it will be noticed that the increasing tendency of Trieste trade and shipping has continued uninterrupted, as is shown by the following figures:—

Year	By Sea		By Rail		Total Tons
	Imports Tons	Exports Tons	Imports Tons	Exports Tons	
*1923	1,356,819	694,137	966,176	1,054,282	4,071,414
1926	1,491,580	934,483	1,387,595	4,951,418	4,765,076
1927	1,656,935	813,500	1,325,362	1,097,365	4,893,162
1928	1,706,303	851,820	1,425,000	982,100	4,965,223
†1929	1,425,000	557,300	767,600	873,700	3,623,600

* The statistics for the period 1924-1925 cannot be taken as a basis for comparison as they were influenced by the Hamburg crisis.

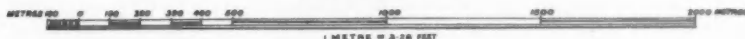
† January—August, 1929.

As will be noticed, figures for 1929 are showing a general increase, as if one takes the monthly average during the period

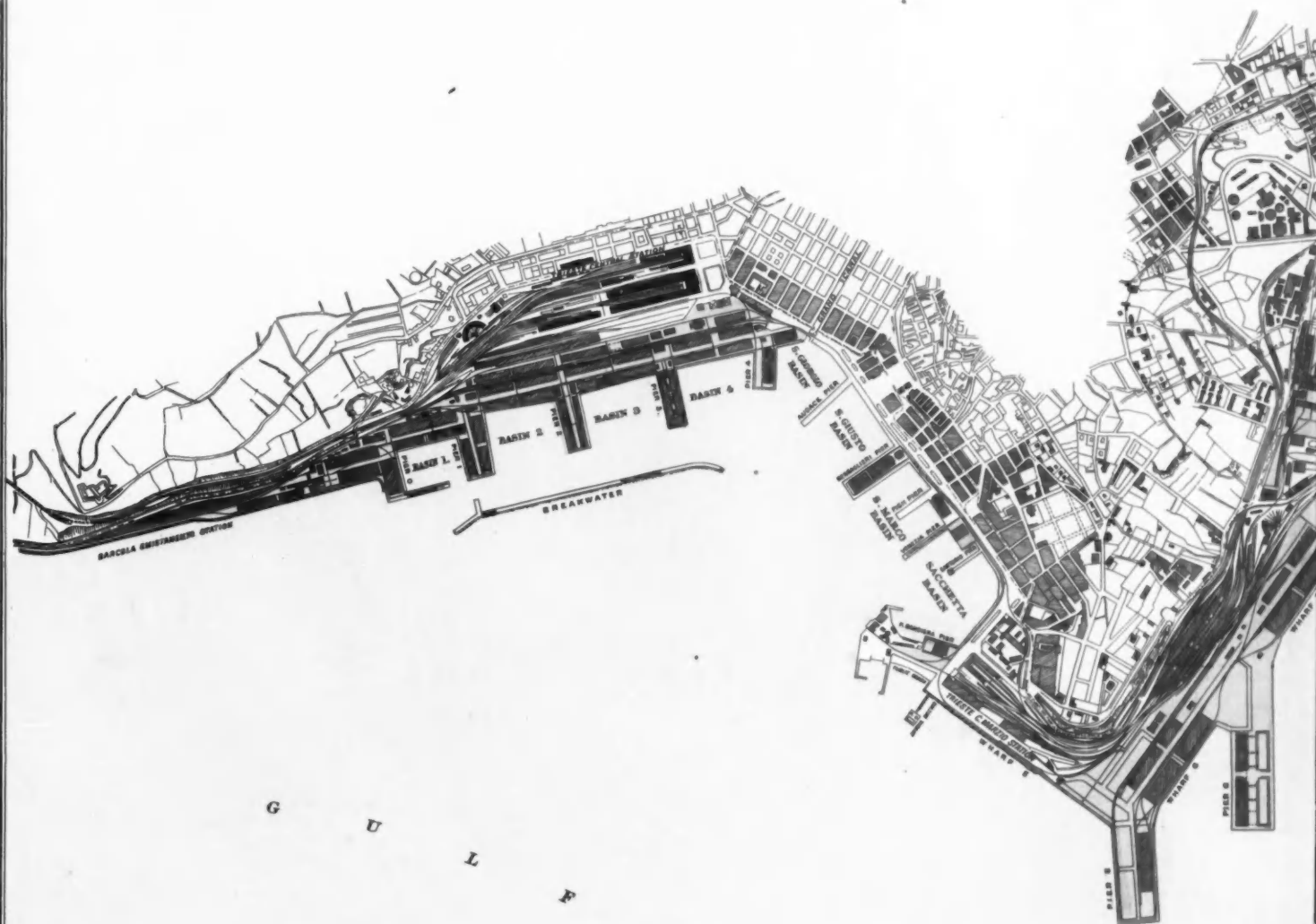
PORT OF TRIESTE.

UNDER THE JURISDICTION OF THE AZIENDA DEI MAGAZZINI GENERALI.

SCALE OF METRES.



NOTE:- Property of the *Magazzini Generali* coloured Pink.
Proposed Pier coloured Red.



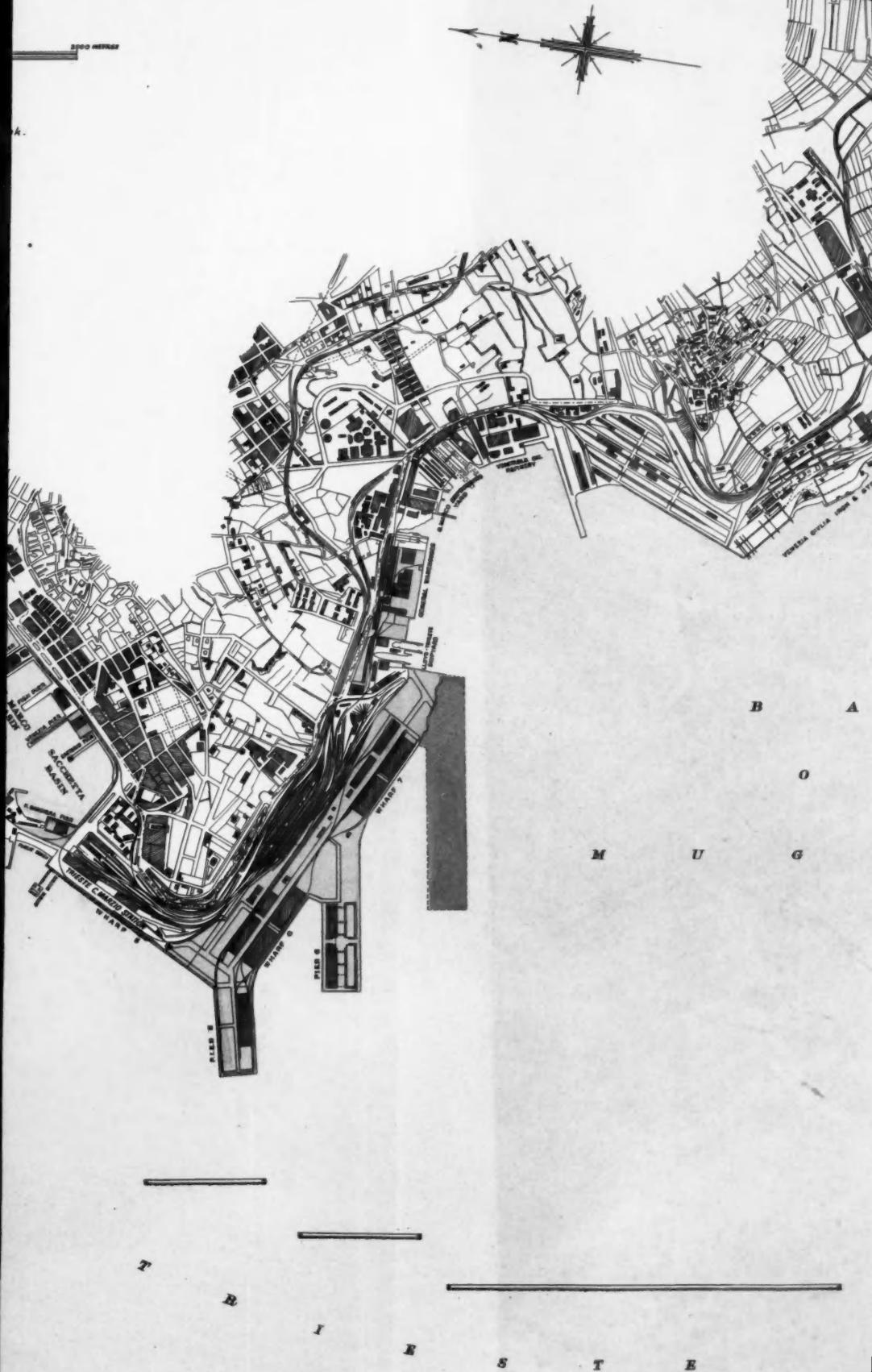
KEY MAP.



THE DOCK AND HARBOUR AUTHORITY, D

ESTE.

MINI GENERALI.



Y, DECEMBER, 1929.



SUPPLEMENT TO THE DOCKING

OF THE TRIEST

THE TRIEST

THE TRIEST

THE TRIEST

THE TRIEST

The Port of Trieste.



Mounting New Cranes on Warehouses Nos. 62 and 64 with the aid of the 200 tons Floating Crane.



40 tons Floating Crane at Trieste.

The Port of Trieste—continued.

from January to August, 1929, and compares it with the figures for the whole twelve months of 1928, it will be seen that total trade at the end of 1929 will show an increase of 500,000 tons.

The real success of Trieste Harbour is due to the sound policy of the Fascisti Government with regard to the port, the reconstruction of the cotton industry in the Trieste and Venice district, the development of the exploitation of hydro-electric resources in Julian Venetia favouring the creation of new industries, the facilities granted to foreign enterprises, such as the Ford Car Co. and several American and Levantine tobacco factories, the creation of the industrial zone in the Port of Trieste running from the Bay of Monfalcone to the Bay of Muggia, where new factories can be built with large fiscal and Custom's facilities granted to the S.A. Zona Industriale del Porto di Trieste formed with the intervention of the Municipality of Trieste, the General Bonded Stores Administration and several banks, among which there is also the Credito Italiano, the increase of subventions granted to the steamship companies, and particularly to the Lloyd Triestino, thus rendering possible the creation of a fortnightly service from Trieste to Bombay in twelve days instead of sixteen as heretofore, and in twenty-four days from New York to Bombay via Trieste, re-establishing in this way a certain advantage in using Trieste as a transit port between the West and the East. The concession of a credit of 110 million lire to the General Bonded Stores, which has made possible the accomplishment of Mole VI., the construction of new warehouses both in the Porto Franco Vittorio Emanuele III., and in the Porto Franco Duca d'Aosta, and the construction of a new maritime passenger station on the Molo Bersaglieri, in the middle of the town, where all services regarding passenger trade will be concentrated, so that passengers will be able to leave directly by train for their homes, the facilities granted to favour the speedy delivery of the freight trains from the Italian State Railways Administration to the foreign administrations on the Italian frontier stations. Finally, the large development given to the air services through the Società Italiana Servizi Aerei (S.I.S.A.), which operates a regular daily service to Zara, a daily service to Turin, a daily service to Genoa, and a service three times a week round the Adriatic from Trieste to Zara, Ancona, and Venice, not to mention the facilities granted to the various shipbuilding yards like the Stabilimento Tecnico Triestino and the Cantiere Navale Triestino at Monfalcone, which have received important orders for the Italian Navy, besides exceptional credit facilities.

There is unlimited activity in the national hinterland of Trieste which is bound to have an important influence on the

development of shipping of that port, especially when it is considered that on one side important works like the connection of the harbour of Trieste with the Venice lagoon by inland waterways exploiting the various rivers and the various canals connecting them, the electrification of the railways connecting the Port of Trieste to the frontier stations, electrification which will increase the capacity of the two lines, which are the only connections between Trieste and the interior, are in project. That the help granted to the General Bonded Stores Administration will enable them to complete the VI. Mole with additional hangars and the corresponding unloading facilities, to complete the VII. Mole, to re-organise the coal storage on the Mole V., and to renew the mechanical unloading and carriage facilities also in the Porto Franco Duca d'Aosta and Porto Franco Vittorio Emanuele III. in order to render possible a quicker and less expensive despatch, although tariffs at Trieste have already been reduced, and the possibility to always reduce expenses and to increase the speed of the operations depends upon the fact that everything is controlled by a single organisation.

There is no doubt that Trieste has even larger opportunities than those outlined above, as there would still be other points on which the organisation could be improved: Trieste stands at three metres above the sea level, while the railway to Vienna reaches 431 metres within 45 km. from Trieste, and the railway to Munich reaches 310 metres within 20 km. from Trieste. From this it can easily be seen how difficult it is to increase large stock of railway cars at Trieste owing to the high cost of traction. Under these circumstances, taking into consideration that among the most important items of trade at Trieste are coal, cereals and lumber, there is no doubt that the rope railway system as applied successfully at Savona could be particularly fitted to the trade between Trieste and Opicina, where large terminals could be established. The second point where there is still much to be done is the question of the speed and of the frequency of the steamship services to the Levant and the Far East, including Australia, as there is no doubt that at the present time the North Sea ports are in a position to offer better and much more frequent facilities to ship goods to overseas markets and Central European exporters will prefer to use those harbours.

These are, however, two points to be considered as new facilities, as it is certain that Trieste already offers a good opportunity of development taking into consideration that the average shipping on each metre of quay does not reach even 500 tons and that no lighters are used, whereas in most cases the average shipping reaches 600—700 tons and a great number of lighters are used.

Bombay Port Trust.

AT a meeting of the Trustees of the Port of Bombay, held on the 22nd October, 1929, the following main items of business were disposed of:—

A Government notification was recorded appointing Mr. R. R. Bakhale as a member of the Board of Trustees vice Mr. Syed Munawar, during the absence of the latter on deputation to Geneva.

A note by the chief accountant on the revenue receipts for the half-year ending 30th September, 1929, was considered. The revenue from all sources amounted to Rs.143.93 lakhs, an increase of Rs.1.28 lakhs over the actuals of the corresponding period of last year, in spite of the general reduction in wharfage charges which took effect from 1st April last. Reviewed as a whole the position is satisfactory; the improvement is reflected in the receipts from all the revenue-earning departments of the Trust. Receipts from wharfage proper (excluding surtax) at the docks and bunders show an increase of Rs.5.66 lakhs over the corresponding period of last year and railway earnings are higher by Rs.57,000.

Subject to the sanction of Government, Mr. J. McClure, M.Inst.C.E., Chief Engineer, was granted five months and eight days' leave preparatory to retirement, with effect from 22nd November, 1929.

Estimates of expenditure for the following works were sanctioned against the relative budget provision:—

Rs.15,970 for settling certain level crossings leading from Mansion Road into Prince's and Victoria Docks.

Rs.9,200 for re-surfacing Akbar Press Road, including drainage improvements and kerbing.

Rs.7,600 for renewing certain hydraulic pressure pipes in Victoria Dock.

A renewal of a lease on the Elphinstone Estate was sanctioned at a considerably reduced rate.

At a meeting of the Trustees of the Port of Bombay, held on 29th October, 1929, the following main items of business were disposed of:—

Plans and estimates amounting to Rs.2,49,200 for a new railway station building at Ballard Pier, together with the paving of platforms, were provisionally approved subject to agreement between the Port Trust and the G.I.P. and B.B. and C.I. Railways regarding recovery of the charges on the capital outlay.

The Board sanctioned an expenditure estimated at Rs.1,22,525 for laying new water mains on the Wadala Sewri Estates to provide an adequate supply of water for the requirements of Port Trust tenants who have leased considerable areas of land in this vicinity for industrial purposes. The general question of liability, as between the Port Trust and the Municipality, for the provision of water supply on Port Trust estates is at present pending for hearing in the High Court, but meanwhile the Trustees considered it imperative to proceed with the work in the interests of their tenants.

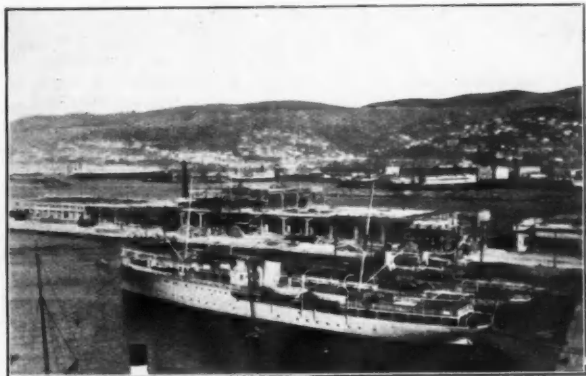
An amendment of the Docks Scale of Rates was approved to provide for waiver of Sunday and holiday penalty charges in connection with the landing and shipment of livestock.

Sanction was accorded under the provisions of the Indian Ports Act to the following annual grants from the Port Fund:—

A donation of Rs.500 to the Pechey Phipson Sanitarium at Nasik for the year 1929.

A contribution of Rs.4,471 to the Goculdas Tejpal Hospital Nursing Association in respect of the year 1929-30, representing a moiety of the cost of the treatment of seamen in-patients of the hospital during the previous twelve months.

The Port of Trieste.



Maritime Passenger Station in course of construction on the Molo Bersaglieri.



General View of the Southern Part of the Porto Franco Vittorio Emanuele III.



Loading operations by means of electric trucks at Trieste.



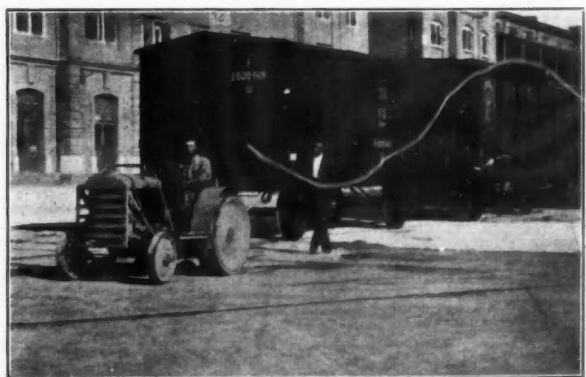
Electric Cranes on Warehouse No. 2a.



Porto Franco E. F. Duca d'Aosta: Warehouse No. 72.



Warehouse No. 69, in the Porto Franco E. F. Duca d'Aosta.



Tractor used for hauling trucks.



New Warehouse No. 2a, in the Porto Franco Vittorio Emanuele III.

North-East Coast Notes.

ALTHOUGH the industrial future is not without its anxieties, the trade outlook on the North-East Coast is really quite heartening. A fair number of ship-building orders have been placed, with, of course, more work in the engineering shops to follow, and there is little difficulty in finding buyers for every ton of coal produced.

Foreign Markets Recaptured.

A very notable pronouncement was made by Sir William Noble, the chairman, at a meeting of the Tyne Improvement Commission in November. Sir William Noble said that the shipments of coal and coke abroad, as distinct from other shipments, had this year exceeded the shipments of 1913 by 40,000 tons. This showed how they had recaptured foreign markets. There was every reason to believe that the total shipments from the river this year would reach 20,000,000 tons. The record year was 1923, when the shipments were 21,500,000 tons, but there were special reasons for that high figure.

The actual shipments for the ten months of this year were 16,403,834 tons, an increase of 3,158,300 tons on last year, equal to nearly 24 per cent. The output, however, is still half a million tons below 1913.

Meantime, it is notable that some excellent dispatches have been given. The s.s. "Thistlebrae" was loaded with 8,037 tons of cargo and bunkers, and sailed in 71½ hours after readiness at the staiths. Good time was kept in the loading of the s.s. "Horden" with 3,662 tons of coking coal and the s.s. "Royston" with 4,343 tons of gas coal. The latter vessel was at the staiths only 25½ hours, and as during part of the time both steamers were loading together, the achievement of getting both vessels to sea again in practically a day was most satisfactory.

Particulars of the coal shipments submitted by the chairman of Blyth Commissioners showed that the increase during the earlier part of the year is being steadily maintained. The coal exports for September, 1929, were 465,321 tons as compared with 370,700 tons in 1928 and 400,416 tons in 1913. The total for the nine months ended September 30th, 1929, was 4,144,364 tons as compared with 3,371,993 tons in 1928, and 3,552,591 tons in 1913. These figures showed an increase of 17 per cent. over 1913 and 23 per cent. over 1928.

It was reported at the same meeting that the Visiting Committee of the Chamber of Shipping of the United Kingdom, consisting of Mr. T. E. Brown (chairman), Mr. R. D. Heard (secretary), and other members of the committee visited Blyth and were received by Mr. R. M. Sutton, deputy chairman, and, after inspecting the South Harbour facilities, the West Staiths were visited.

With a view to giving additional facilities to ships using Blyth West Staiths it was agreed to make arrangements with the postal authorities to instal a telephone kiosk, and if it is found that the number of persons making use of the facility warrants it, further kiosks will be established in other parts of the harbour.

Wear Trade Statistics.

An interesting return, showing quantities of coal and coke shipped from Sunderland to various destinations during the nine months ended 30th September, 1928, and 1929, and just issued by the Commissioners, is appended:—

	1928 Tons	1929 Tons	Per cent. Increase or Decrease
Germany	532,790	556,624	4% Inc.
Netherlands	133,260	118,997	11% Dec.
Belgium	51,405	51,670	—
France	338,180	399,440	18% Inc.
Italy	362,950	155,948	57% Dec.
Other Countries	826,133	559,014	32% Dec.
London	1,222,630	1,268,117	4% Inc.
Other Coast Ports	337,250	445,891	32% Inc.
	3,804,598	3,555,701	7% Dec.
BUNKERS.			
Foreign Voyages	191,815	149,615	23% Dec.
Coastwise Voyages	58,980	60,240	2% Inc.
	4,055,393	3,764,556	7% Dec.

Imports for the same nine months were:—

	1928 Loads	1929 Loads
Timber	75,882	85,620
Grain	82,775 Qrs.	106,006 Qrs.
Esparto	20,883 Tons	14,793 Tons
Iron Ore	111,556 "	34,407 "
Cement	9,861 "	9,227 "
Petroleum	53,604 "	67,910 "
Wood Pulp	3,092 "	4,413 "
Iron and Steel	5,001 "	12,532 "
Sundries	30,673 "	32,364 "

Exports (other than coal) for the same nine months were:—

	Tons	Tons
Machinery	15,558	9,375
Iron and Steel	2,729	3,242
Pitch	2,094	2,592
Creosote Oil	—	2,770
Petroleum	16,791	16,780
Sundries	3,231	5,952

Interesting developments are foreshadowed in the acceptance by the River Wear Commission of the tender of the Cleveland Bridge and Engineering Co., Ltd., Darlington, of £27,668 for the construction of a coal staith and gravity spouts at the South Docks, Sunderland.

Tees Improvement Schemes.

The schemes for the widening and the deepening of the river Tees, prepared by the Tees Conservancy, are being pressed forward. The total cost is put at about £500,000. With a view to supporting the project, members of the Port Facilities Committee of the Chamber of Shipping of the United Kingdom visited Middlesbrough at the end of October and made an inspection of the river. The members of the committee consisted of Major-General S. S. Long, C.B., director of Lever Bros.; Mr. T. E. Brown, Messrs. Robinson Brown, Newcastle; Mr. M. H. Hulme, Coast Lines, Ltd.; Mr. J. R. Rix, Robert Rix and Son, Ltd., Hull; Mr. S. B. O'Neill, Coast Lines, Ltd.; and Mr. R. D. Heard, secretary Port Facilities Committee. In extending to the visitors at luncheon a cordial welcome to "the industrial atmosphere of Teeside," Alderman B. O. Davies said that no river in the country had progressed like the Tees. From a mountain stream a hundred years ago, it had been gradually developed until now the river would accommodate some of the largest liners afloat. The Tees Commissioners would not be satisfied, however, until the river was made one of the best waterways in the United Kingdom. The visit of the Port Facilities Committee was regarded not only as an encouragement, but also an inspiration to the Commissioners to go forward with their progressive schemes with even greater keenness. They lived in an age of industrial competition, and their aim was to see that the river played its part along with the great industrial establishments which lined its banks.

Mr. J. H. Amos said the Commissioners had one object in view, and that was to promote the trade of the district. In addition to deepening and widening the river, the Commissioners proposed to reclaim a large area of seal sands on the north side near the mouth. Mr. Amos added that they had applied to the Government for a grant of £100,000 towards the expenditure.

Since these events transpired, it is understood that the Government has promised to make a grant. Mr. G. W. Irons, chief secretary of the Unemployment Grants Committee, also visited Middlesbrough and discussed the schemes with Mr. J. H. Amos, general manager of the Tees Conservancy Commission.

Personalia.

A complimentary luncheon was given in Newcastle on October 30th to celebrate the election to the presidency of the Associated Chambers of Commerce of Sir Walter Raine, the first member of the Newcastle and Gateshead Chamber of Commerce to attain that high distinction. The luncheon was given by the members of the Newcastle and Gateshead Chamber of Commerce.

Mr. J. H. Edwards, managing director of the Middle Docks and Engineering Co., Ltd., South Shields, has been elected president of the Shipbuilding Employers' Federation. He is a prominent figure in local industry. He has held his present post for nearly thirty years, and before that was manager of the High Docks repairing establishment of H. S. Edwards and Sons.

The death occurred at Corbridge-on-Tyne of Mr. Stanley Hudson, formerly well-known on the Newcastle quayside. He began his career with Messrs. Cairns, Noble and Co., subsequently being in the service of Messrs. Huntley Bros., coal exporters. He afterwards took up a position with the Staveley Coal and Iron Co. at Chesterfield.

Another quaysider to be removed by death was Mr. Thomas Hodge. He commenced in the offices of Messrs. Pyman, Bell and Sons, and after two years abroad joined the staff of Messrs. James Knott and Son in 1892, where he remained until 1907, when he commenced business as a coal exporter on his own account.

Notes from the North.

Locomotive with a History.

ONE of the small locomotives at present working on the new Lever dock at Bromborough has an interesting history. It is now designated "Mick," but, we understand, its original name was "Sunlight," and it was the first locomotive to be used at Port Sunlight when the works were founded 43 years ago. After having performed hard work faithfully at Port Sunlight for nearly thirty years, "Sunlight" was sold to a colliery company at Workington, travelling there under its own power. Since then it has been sold to a contractor, and, after being in various parts of the country has, singularly enough, returned to near the place of its "youth," and is now engaged on the new Bromborough Dock.

Marvellous Escape at Graving Dock.

While backing a motor lorry near the graving docks, Beaufort Road, Birkenhead, a motor driver had a marvellous escape from death recently. The vehicle went too far and toppled over the edge of the dry dock and crashed 60-ft. to the bottom, practically wrecking it. The driver, when he felt the vehicle going over the edge, climbed hurriedly from the cab of the lorry and attempted to jump clear. He landed on the first ledge of the steps forming the wall of the dry dock and then rolled down to the bottom. Men who saw the accident expected to find him mangled, but he escaped with minor injuries.

Dee Embankment Proposal.

Flintshire County Council Railway and Parliamentary Committee has under consideration a scheme for the construction of a £3,000,000 embankment across the mouth of the River Dee from Hilbre to Point of Ayr. The proposed embankment would contain a bridge in the centre and would provide for a roadway and railway line. The embankment would put North Wales and Cheshire in direct communication, and road traffic proceeding to Chester and Liverpool would be able to avoid the congested Deeside area and the Queen's Ferry Bridge. According to the scheme, the embankment would be six miles long and 75 yards high. The scheme has been referred to the Dee Conservancy Board.

Record Grain Traffic.

New records have recently been created by the Liverpool grain trade, whose demand for warehousing accommodation has been extraordinarily heavy. Though additional warehouses were put at the disposal of the trade to supplement the ample accommodation usually available, it was not sufficient, and a number of ships have had to be used as floating warehouses. Last month there were 1,000,000 quarters in merchants' hands and 400,000 in millers' hands, a record for fifty years. Several warehouses were placed at the disposal of the trade by the Dock Board.

Although there has been some congestion in the port, it has not been anything like as acute as some of the sensational articles in the lay Press would suggest. The Port of Liverpool has a total storage accommodation for 150,000 tons of grain, of which the Mersey Docks and Harbour Board can normally accommodate 94,000 tons. All this has been taken up, and the Board has improvised accommodation for an extra 43,000 tons. Additional warehouse space has been provided at the Wallasey, Wapping, Albert, and Stanley Docks, and additional sheds on the quays of the West Canada, Canada Tongue, and North Alfred Docks.

Proposed New Ferry.

Bootle Corporation Finance Committee has authorised the chairman and deputy chairman to interview the Mersey Docks and Harbour Board with a view to the provision of ferry accommodation in the borough, including landing facilities on the dock estate. This is a revival of an agitation conducted on and off for about thirty years. It was allowed to lapse for a time because the Dock Board did not want the public to use the docks approach. There is a tremendous waste of time at present, when Bootle, Waterloo and Seaforth people have to go into Liverpool before they can cross the river. Three years ago an attempt was made to provide a ferry by boat which would cross the river and run up the sandy foreshore at Waterloo, but the effort was discontinued. There is already plenty of ferry accommodation, a pier at Canada Dock and another jetty at Langton Dock.

Probably the objections that have been raised on occasions in the past when this proposal has been made, will again prevail. It is not considered desirable that the public should be encouraged to use the dock estate, with its long and heavily trafficked roads to seek a means for crossing the river, when there is such a good service of overhead railway trains which can take passengers to the pierhead in a few minutes.

Master Portage Question.

Liverpool shipping and forwarding agents have been advised on the point in reference to the master porters' rates for East Indian palm oil. The Dock Labour Joint Committee gave a ruling that no extra wages are payable under the White Book Agreement to dock labourers handling East Indian palm oil unless in any specific case a claim that the barrels are in dirty condition can be established. Hence, the Mersey Docks and Harbour Board has directed that the description of "Oil, Palm," in the list of articles on page 21 of the Master Portage Bye-Laws be altered to read "Oil, Palm (other than East Indian and palm oil in iron drums or cylinders)." If, in any specific case, a claim that the barrels are in dirty condition is established, the master porter will be entitled to add to the rates shown in the classification tables an extra charge of 1d. per ton for every extra 6d. per day paid for labour.

The new master porters' rate on Premier Jus and Stearine in tierces or casks not exceeding ten cwts. each, are now in operation. The new rate is 30d. per ton, including weighing singly, for delivery after the goods have been stowed on the quay.

New and Heavy Traffic.

The port of Liverpool recently received the first shipment of apples from Port William, Nova Scotia, the new Atlantic fruit shipping port in the Annapolis Valley. In another section of imports, canned salmon, a new record has been created. On October 24th, no fewer than 29,500,000 tins of the red fish arrived on Merseyside. This huge consignment was carried in two vessels, the Alfred Holt steamer "Dolius," and the "Hakodate Maru," belonging to the Nippon Yusen Kaisha Line, and constituted the sole cargoes of the two boats. The "Dolius," which berthed in the East Harrington Dock, carried 16,500,000 tins, stored in 218,740 cases, this exceeding any previous shipment to the port in one vessel by nearly 3,000,000 tins. The "Hakodate Maru's" cargo was 13,000,000 tins, in 158,775 cases.

Clarence Dock, Liverpool.

One passage in the recent address by Mr. R. D. Holt, chairman of the Mersey Docks and Harbour Board, referred to the sale of the Clarence site to the Liverpool Corporation for £339,744. A little over 100 years ago, to be precise, in 1825, this area was acquired from the Corporation by the dock authority for £2,000 per acre, in all about £12,000. The dock took its name from the Duke of Clarence, afterwards William IV., and was specially designed for the use of steamers, then an innovation, and on this account was placed at a distance from this town for fear of the risk of fire. The Clarence Dock was planned and constructed by Jesse Hartley, a great deal of whose work still stands in the dock estate.

Tender Accepted.

The Mersey Docks and Harbour Board has accepted the tender for electric cable, etc., submitted by the British Insulated Cables, Ltd., and that for wire ropes submitted by the Whitecross Co., Ltd., of Warrington.

Weighbridge for Clarence Dock.

Liverpool Corporation has accepted the tender of Samuel Denison and Son, Ltd., of Hunslet Foundry, Leeds, for the supply and erection of a 120-ton weighbridge at the Clarence Dock generating station for the sum of £908.

Ship Canal Ferry.

The ferries across the Manchester Ship Canal at Irlam and Cadishead were a subject of complaint at Irlam Urban Council meeting. The ferry at Irlam is for vehicles as well as passengers, and it was complained that it was cumbersome and out-of-date. It connected Irlam with Flixton and averted several miles of road travel via Barton Bridge. A joint conference was decided upon between representatives of the Irlam U.D.C. and the Flixton and Partington Parish Councils with the object of joint representations being made to the Manchester Ship Canal Company. At the same meeting it was reported that the Lancashire and Cheshire County Councils had declined to entertain a proposal for the erection of a bridge across the canal at Cadishead.

Too Costly.

Messrs. Basil Mott and J. A. Brodie, joint engineers to the Mersey Tunnel Committee, it is understood, reported unfavourably upon the scheme put forward by Mr. Robert Gladstone for a passenger-way to and from the tunnel in North John Street, Liverpool, and with accommodation for an underground garage. The scheme, it was thought, would be prohibitive in cost and would interfere with the smooth working of the tunnel.

*Notes from the North—continued.***Innovation for Meat Traffic.**

The L.M.S. Railway Company have just put into service a fleet of insulated lift vans for the transport of frozen meat between ships and the cold air stores in Manchester. The van (which, in effect, is a mobile cold store) is lowered into the ship's hold, where the carcasses are transferred. It is then sealed and taken direct to the cold stores with the minimum of handling and without a change of temperature. This innovation is a big step forward in the campaign for cleaner dispatch of meat.

North Wales Coast Erosion.

Colwyn Bay Council has set up a committee to deal with the question of sea erosion and to assist other coastal towns which are promoting legislation on the subject. Llanfairfechan Urban Council has had under consideration a scheme for sea defence works at the east end. The surveyors' estimate of the cost of carrying out the whole scheme is: Promenade sea wall, £5,784; east end sea wall, £788; making a total of £6,572. The scheme has been provisionally approved.

Deferred.

Representatives of the Mersey Docks and Harbour Board have had a meeting with the Liverpool Corporation Finance Committee to discuss the promotion of a seaplane base on the Mersey. It was decided to defer the scheme for further consideration. The conference decided in favour of the erection of an aerodrome on the Speke Estate. The Town Clerk reported that he is making inquiries as to the cost, etc., of a municipally owned and managed aerodrome, or, in the alternative, the terms upon which National Flying Services, Ltd., and the Alan Cobham Aviation, Ltd., may be prepared to erect and run an aerodrome at Speke.

An Informative Exhibit.

In the geological department of the Liverpool Museum has just been added an exhibit of particular value to those interested in coast erosion problems. The collection of photographs, maps, and diagrams shows the havoc of the sea at Crosby and Hilbre, as well as aerial photographs showing the great scheme of the Netherlands Government to reclaim the Zuyder Zee as agricultural land. The agents of erosion are pictured, such as the weathering of a sandstone at Hilbre and the drift sand at New Brighton. Another exhibit of particular interest is "Marran" grass. Great quantities of this grass was planted along the Wallasey sandhills in an effort to stop the drift sand from making further inroads. The roots bind the sand particles together and help very considerably to stop the drift. The full story of the Dutch Government's plucky fight against the all-conquering sea is told in diagram and picture. These have been supplied by the Government contractors who are at present working on the scheme which, it is estimated, will not be fully completed until 1952. The scheme is in three parts: (1) Shutting out the sea from the Zuyder Zee by two dams; (2) reclaiming enclosed areas or polders by pumping out the water; and (3) leaving a large area of water (Yssel Lake) to provide an outlet for the Rivers Yssel and Vecht and to serve as a fairway for shipping. The aerial photographs show clearly that considerable headway has been made with the scheme.

Completion of Carriers Dock Scheme.

The work of adapting the berth at the shed on the south side of the Carriers Dock for the purpose of providing accommodation for discharging and loading cargoes was completed on November 7th. The length of the crane track at the berth at the south side of the Carriers Dock is 350-ft. Provision has been made for four 5-ton electric cranes fitted with grabs of a capacity of 27 cubic feet each. The maximum dimensions of the vessels that can be accommodated are 430-ft. long and 25-ft. draft. Tentative charges have been fixed for the quay operations which it is intended in the first place shall be carried out by the Board. The berth has been fitted with a railway wagon weighbridge and with capstans to facilitate the manipulation of the railway wagons, and it will supply a long-felt want in the port—a berth at which rough cargoes can be delivered direct from ship to railway wagon on the Liverpool side of the river.

Grain Elevators Sunk in Dock.

Owned by the United Grain Elevator Company, of Bootle, a small barge designed for the carrying of portable elevators from ship to ship, sunk in rather mysterious circumstances in Queen's Dock, Liverpool, a few days ago. The barge was moored at the wharfside in Queen's Dock when the men went off duty for the day, and, on returning the following morning, they found she had sunk at her moorings, for some unexplained reason. She was carrying two portable grain elevators and full accessories. The water at this point was about 34-ft. in depth.

Red Pier, Isle of Man.

Delay has been experienced in starting the work of extending the Red Pier, Isle of Man, the reason being the fact that the Treasury approval for the expending of the money has not yet been received. During the whole of the season discussions have been taking place between the Government Office, the Treasury, and the Harbour Board, mostly of a technical nature, and these have not yet been satisfactorily settled, but a further meeting is to be held, when it is hoped that the outstanding matters will be adjusted. The scheme is estimated to cost £262,000. It is proposed to expend £10,000 this winter and £30,000 next winter.

Dee Waterway.

Mr. F. Webster, in an address to the Liverpool Engineering Society, spoke of the problem of the Dee reclamation schemes. He said that the present high training bank is definitely pulling the channel away from the Flintshire shore to the embankment itself. The stability of the Hilbre Channel had led him to the conclusion that success could only be obtained by a bold policy of developing the Hilbre Channel into Mostyn Deep and encouraging the silting of the present Welsh Channel by training works.

De-rating.

Negotiations have been in progress between the Mersey Docks and Harbour Board and the rating authorities as to the sum by which the Board and the various trade sections will benefit. Outward coastwise shipping has already benefited by the anticipated rate reductions. In March last the Board passed a recommendation of the Finance Committee, which had considered how best to utilise the relief from rates which the Board would obtain from the Government de-rating proposals and which came to the conclusion that some immediate relief should be given to the coasting trade. The coastwise rates on goods will be halved and dock rates on coastwise vessels reduced from 11d. to 7d. Short sea Continental vessels also benefit slightly. A few days ago the General Trade Committee of the Liverpool Chamber of Commerce had under consideration the extension made by the Manchester Ship Canal Company in regard to ships' dues on vessels discharging part cargoes at Manchester. From October 1st, vessels discharging not more than one-half of their net registered tonnage pay only half of the ship canal dues. The Dock Board's concession, therefore, compares unfavourably with that at Manchester, i.e., ships discharging not more than one-tenth of their net registered tonnage paying one-half tonnage dues plus tonnage dues on the cargo landed. Representations have been made to the Dock Board without success. Colonel Hawkins (assistant general manager of the Dock Board) said the question would be considered again by the Board when the de-rating proposals came before them.

Named after Dock Board Crane.

A Liverpool firm of road transport contractors has just accepted delivery of a 100-ton lorry, 66-ft. in length, which has been named the "Mammoth," in honour of the crane of that name owned by the Mersey Docks and Harbour Board. Among the early tasks to be undertaken by the new lorry is the carriage from a Sheffield workshop to Liverpool of a 110-ton wheel manufactured for China. Before the firm undertook the contract to make the wheel, they inquired whether the haulage contractors would be able to convey it whole to the docks so that it might be shipped complete to China. The lorry is designed to carry such articles as a full-sized locomotive from the manufacturer's works to the port of embarkation, complete, so that on arrival at its destination it can be lifted by crane from the ship to the lines on which it is to run. The lorry has fourteen wheels in three sets of four and one of two, and, with a load of 100 tons, the weight is so distributed that each wheel, with its solid rubber tyres, will bear a weight of something like seven tons. The engine power exerted on the driving wheels is approximately 80-h.p. The normal maximum speed is about 6—7 miles an hour with a 65-ton load, and 5—6 miles per hour with a 100-ton load.

Chester Dock Plant for Boston.

The Hydraulic Engineering Co., Ltd., of Chester, have been successful in securing an order from the Boston Dock and Harbour Commissioners to supply and erect a hydraulic coal hoist and other hydraulic plant, including capstans, etc., with the necessary pumps and accumulators. This hoist will be capable of dealing with wagons of coal to the gross weight of 30 tons, and will greatly facilitate the handling of coal at the Lincolnshire coast port. The two pumps will be electrically driven, and each will be capable of delivering 220 gallons of water per minute, and a pressure of 750-lbs. per square inch. The pumps will work in conjunction with the storage accumulator, which will have a capacity of 220 gallons. It is expected that the contract will take about twelve months to complete.

*Notes from the North—continued.***Bridge Weights.**

That regulations intended for public notice might be expressed with greater clarity, was the substance of a hint to the Mersey Docks and Harbour Board by the Birkenhead magistrates a few days ago. The comment was made in a case in which the owner of a six-wheeled Scammell wagon was summoned for having infringed the regulation which stipulates that the maximum weight for the Woodside Floating Roadway was 15 tons. Mr. Denton, for the Mersey Docks and Harbour Board, said in 1860 no vehicle was allowed to go up the roadway with a weight exceeding four tons without obtaining the consent of the Dock Board. At the present time, four-wheeled vehicles were allowed to carry twelve tons, and six-wheeled vehicles were allowed to carry a maximum weight of fifteen tons. A constable observed that the pontoons were being submerged, and therefore suspected that defendant's weight was too heavy. The defence was that the notice (which was exhibited on the bridge) conveyed a perfectly clear impression that where there was a distance of ten feet or more between axles of the vehicle, the maximum weight on each axle should not be more than six tons. The distance between the axles of defendant's vehicle was more than ten feet, and defendant therefore submitted that he was entitled to carry any weight up to 18 tons. As far as a reasonable user of the bridge was concerned, the notice gave an ordinary interpretation the right to have six tons on each axle. Defendant was ordered to pay a nominal fine of 10s.

Problem for Salvage Experts.

Recently in Sandon Dock Basin, Liverpool, the French steamer "Oklahoma" caught fire and sunk in the dock. Since then there has been several conferences of Dock Board experts to decide what steps should be taken for the removal of the vessel's hulk. The damage to the "Oklahoma" has been found considerably graver than was at first thought, and it is unlikely the ship will be found to be worth repairing. The methods decided upon by the Dock Board for raising and removing the "Oklahoma" involved the bringing of a caisson from the Morpeth Dock, Birkenhead. This was placed across the entrance to the Sandon Dock. The water was drained off. After that, the vessel, which divers ascertained had been very badly damaged, had to be patched up and got into a condition to float. Prior to being towed out of the refilled dock and taken across the river to be beached at Tranmere.

Salvaging a Dock Wreck.

To facilitate the raising of the sunken steamer "Oklahoma," the Sandon Dock, Liverpool, had to be run dry. All small craft were removed and a caisson was placed near the dock entrance. The caisson acted as a buffer at the entrance after the dock was dry, being specially adapted to overcome the force of water at standard half-tide and keep it from entering the dock. While the dryness continued, liners usually accommodated used other docks.

The Port of Vizagapatam.

THE past history of the Port of Vizagapatam is not of great commercial interest inasmuch as it does not lead by a gradual series of developments to the situation which exists at present. The port owed its past existence to two natural features, and little was done by art to improve the facilities provided by Nature. The two natural features were a lofty headland with deep water close up to its sea face, which provided sheltered anchorage for ships; and a small river which, after flowing through an expanse of low marshy land, made its exit to the sea along one side of the headland, thus furnishing a natural haven for small boats by means of which the produce of the district was carried to ships in the roadstead. The possibilities of trade development under these conditions were further limited by the existence of a sand bar at the mouth of the river, upon which a heavy surf broke during stormy weather.

The fact that trade to the volume of nearly 100,000 tons in a year passed through the port in spite of these disabilities was sufficient to give food for thought. The explanation lay in the length of the coastline between Calcutta and Madras. Vizagapatam, lying as it does nearly midway between these two ports, was the spot where their distance was most keenly felt, and this fact, when taken in conjunction with the natural features already described, caused trade to burst its way to the sea via Vizagapatam, driven outwards by its own pent-up forces.

For years it had been recognised by the Government of India that Vizagapatam ought to be developed into a properly equipped port on the first favourable opportunity, and also that a railway line ought to be constructed connecting it with the Central Provinces, a large area of which is nearer to Vizagapatam than either to Calcutta or to Bombay. The combined scheme would provide trade for the port and a port for the trade.

As soon as financial conditions recovered from the effects of the war and its aftermath, the two schemes, i.e., the railway and the port, were taken in hand. The swampy land through which the river made its way to the sea provided plastic material which could be modelled by the art of the engineer into a land-locked harbour with ideal space around it for the provision of warehouses, transit sheds, railway goods yards, and all the paraphernalia of a large port.

The river itself required only to be widened and deepened to provide a sheltered entrance to the harbour. A design was approved which permitted the fullest advantage to be taken of these natural features. The dredging necessary to provide deep water in the inner harbour also provided material for the reclamation of the surrounding swamp. It was therefore found possible to maintain a constant balance between water space and adjacent land space, and in consequence the harbour could be developed by continual stages in accordance with the development of its trade.

Work on the first phase of development is now well advanced, and it is anticipated that another three years' work will see

it completed. It is projected, however, to move trade to the warehouses and quays of the inner harbour towards the end of 1930. It will not be possible to admit sea-going vessels to the inner harbour at the same time, but the entrance channel will by then be of sufficient depth to admit of the passage of lighters and tugs between the inner harbour and the roadstead.

The facilities offered to shippers during this intermediate stage will mark a great advance on present facilities, and should lead to a substantial increase in trade.

Owing to the deepening of the entrance and removal of the sand bar, lighters carrying from 50 to 60 tons of cargo will replace the present surf boats, which carry only 2½ tons. Delays to steamers caused by interruptions to work on account of heavy surf will be abolished, and the speed of intake and discharge of cargo will be greatly increased because ships' derricks will be continuously occupied instead of being idle every few minutes as at present, while empty surf boats move away to make room for boats with loads, or vice versa.

The facilities on the quays themselves will compare even more favourably with present facilities. Warehouses will be available parallel with and adjacent to the quays with direct rail service on one side and quay service on the other, while the quays themselves will be equipped with appliances suitable for the movement of goods from quay to lighter and vice versa. It should be understood that this stage of development is only an intermediate stage of construction preparatory to the opening of the inner harbour for ocean-going vessels, but it is felt that it will have a valuable influence in drawing trade to the port, so that when the inner harbour is opened for ocean-going vessels there will be a substantial nucleus of trade already in existence, and its subsequent development is likely to be more rapid than would have been the case had improved intermediate facilities not been provided.

Unique Rescue Ship for Italian Navy.

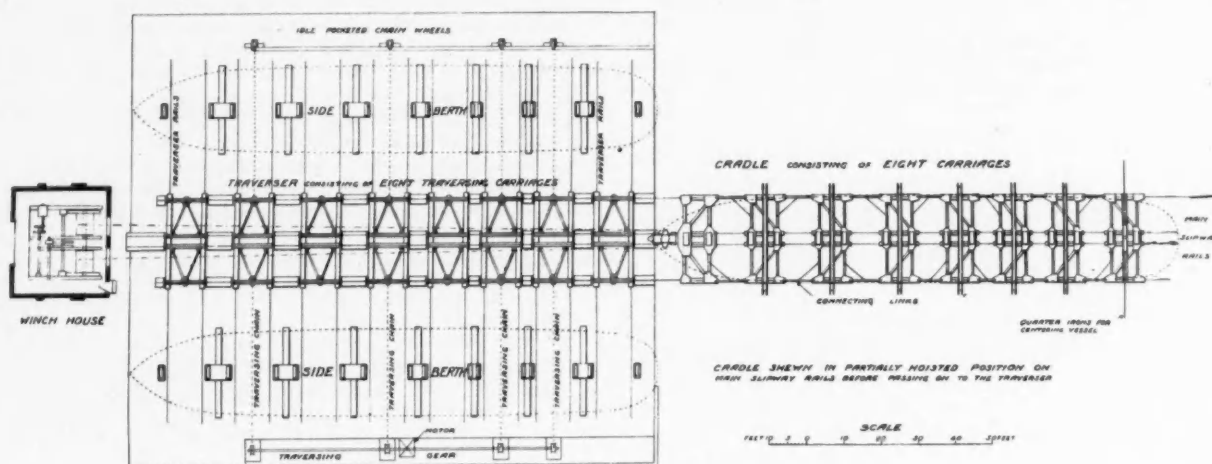
A remarkable rescue ship for the Italian Navy, "The Jason," which has been specially designed to relieve sinking ships and raise foundered ones by means of compressed air, has just been launched at the Ernesto Breda Company's shipyards at Venice.

The new vessel is fitted with elaborate apparatus for illuminating the ocean bed and for diving operations, and is equipped for laying and repairing submarine cables. Any two of the Navy's largest cruisers can be towed by it simultaneously. The capacity of its pumps is 3,000 cubic metres per hour.

The Breda shipyards, which have been increasingly active since the Company obtained a £1,000,000 loan from Dillon Read and Company of New York, are about to deliver another vessel to the Italian Navigation Company, and have under construction four smaller ships for Greece.

Slipway with Side-slipping Arrangements.

For the London, Midland and Scottish Railway Company, at Fleetwood.



PLAN SHewing GENERAL LAYOUT
OF
SLIPWAY WITH PATENT SIDE SLIPPING ARRANGEMENTS

Fig. 1.

SIDE-SLIPPING arrangements have been devised for the purpose of transferring vessels from a cradle to side berths situated above water level at the sides of the main slipway. By this means a number of vessels can be accommodated at one time, and the cost of accommodation per slipway berth provided is thus greatly reduced. The reduced cost per slipway berth provided is due to the fact that the haulage machinery and the portions of the main slipway under water, which are generally the most costly parts of a slipway installation, can be utilised for handling a much greater number of vessels.

After considering the question of providing additional slipway accommodation at Fleetwood, the London Midland and Scottish Railway Company some time ago decided to adopt a slipway with side-slipping arrangements designed on the system patented by Mr. Archd. Henderson, M.Inst.C.E., Aberdeen.

The installation, which was put into operation last year and has proved entirely satisfactory, was constructed under the direction of the Railway Company's Engineer in co-operation with Messrs. Henderson and Nicol, Chartered Civil Engineers, Aberdeen, who acted as consulting engineers to the Company for the work.

The slipway is capable of dealing with vessels having a displacement of 600 tons, and is constructed on the site of an old single line slipway. The space available permitted of only two side berths being provided, one on each side of the main slipway rails, thus giving accommodation for three vessels at one time—two on side berths and one on the cradle.

The general layout and a cross section of the slipway installation are illustrated by Figs. 1 and 2.

The main slipway rails are laid on a gradient of one in twelve, and are carried on timber way-beams supported partly on piles and partly on concrete foundations. Above water level the foundations of the slipway and machinery are constructed of mass concrete.

The whole of the work up to rail level, and the foundations for the machinery and the winch house were constructed departmentally by the Railway Company's own staff. The contract for the cradle, traverser and machinery was let to Messrs. John M. Henderson and Co., Ltd., King's Works, Aberdeen.

Method of Operation.

Briefly described, the method of operating the slipway is as follows:—

The vessel to be slipped is brought over and blocked up on the cradle in the usual manner. The cradle, with vessel superimposed, is then pulled up over the traverser, and the eight carriages of the cradle locked to the eight carriages of the traverser. The truck carrying the haulage ropes is then disconnected from the cradle and the traversing gear is brought into operation. The traverser with cradle and vessel superimposed is then pulled over to one of the side berths, where the vessel is transferred from the cradle keel-blocks to the fixed side berth keel-blocks, which are placed so that they lie between the carriages of the cradle. The vessel is transferred from the cradle to the side berth by wedging up the side berth keel-blocks and bilge-blocks and easing off the cradle keel-blocks and bilge-blocks until the vessel is supported entirely by the side berth keel-blocks and bilge-blocks.

When the vessel has been securely blocked up on a side berth, the connecting links between the cradle carriages on one side are removed and the bilge blocks on the same side are, by means of a specially designed arrangement, turned into a horizontal position to permit of the cradle and traverser being pulled back under the vessel to the main slipway. In this position the truck with haulage ropes is again attached to the cradle. The cradle carriages are again connected by the side links, after which they are unlocked from the traversing carriages. The cradle can now be used for hauling up another vessel and transferring it to the other side berth, or the vessel can be left on the cradle, as may be found expedient.

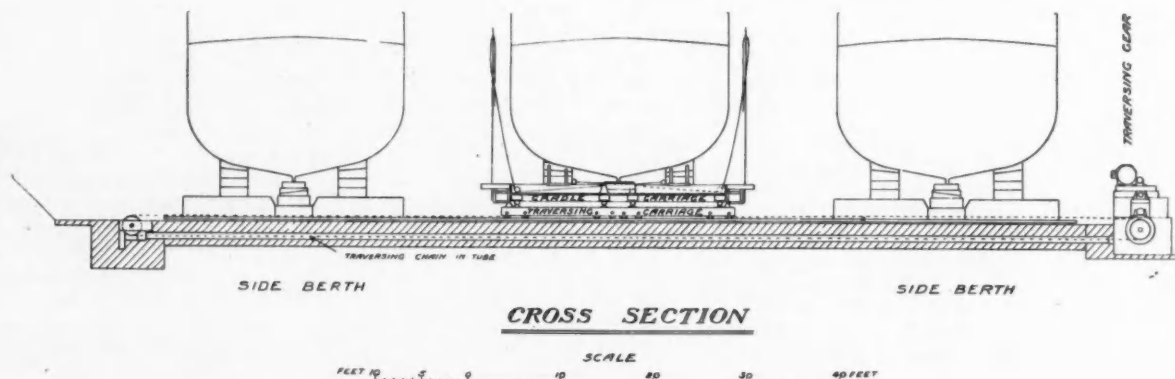


Fig. 2.

Slipway with Side-slipping Arrangements—continued.

To remove a vessel from the side berth and launch it, the process is as follows:—

The cradle carriages having been locked to the traversing carriages and the connecting links on one side disconnected, the traverser and cradle are pulled under the vessel on the side berth. The vessel is transferred from the side berth keel-blocks by raising the cradle keel-blocks sufficiently by means of the rams to take the weight of the vessel, at the same time slipping in the collars under the moveable ends of the cradle keel-blocks and wedging up the cradle bilge-blocks. The side berth keel-blocks and bilge-blocks are then knocked out, leaving the vessel supported on the cradle. The connecting links between the cradle carriages are then connected and the traverser and cradle with vessel superimposed are pulled over to the main slipway rails, where the haulage ropes are attached to the cradle, and the traverser unlocked from the cradle and locked to the main slipway rails. The cradle and vessel are then lowered into the water until the vessel leaves the cradle.

Some of the advantages of this system of side-slipping are as follows:—

- 1.—The side-slipping apparatus is below the level of the main slipway rails, and there is consequently no loss in depth of water which would be occasioned if the side-slipping apparatus were placed on the top of the cradle.
- 2.—The vessel remains on the cradle during the whole operation, and is therefore relieved from stresses during the operation.
- 3.—The side-slipping apparatus, being below the level of the main slipway rails, the vessel, when blocked up on the side berths, is well clear of the ground, generally about 4-ft., leaving ample space for easy working under the vessel.



Vessel deposited on side berth and cradle returned to main slipway.

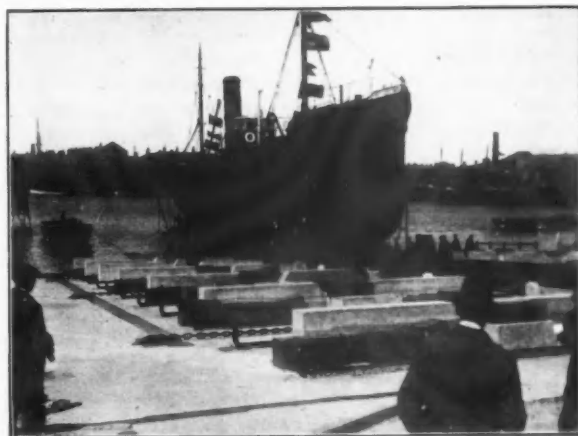
- 4.—As only the keel-blocks and bilge-blocks are left under the vessel, there is a minimum of obstruction, the vessel being supported in a similar manner to that which it would be in a graving dock.
- 5.—After side-slipping a vessel the cradle is immediately ready without any preparation for use as an ordinary cradle for inspection purposes or short repairs.

*Description of Cradle, Traverser and Machinery.**Cradle.*

The cradle is constructed of steel and consists of eight separate carriages connected by moveable links. Each of the eight carriages carries two keel blocks and two bilge blocks, and is mounted on twelve double flanged cast steel rail wheels 12-in. in diameter with gun-metal bushes and forged steel axles. The keel-blocks are of cast steel with oak caps, and are hinged at one end and free to move vertically over a limited distance at the other end. When carrying the load, the free ends of the keel-blocks normally rest on collars supported on the framework of the carriages, and under the free end of each keel-block there is a hydraulic ram which operates through the collar referred to. These rams are worked in pairs from one pump on each cradle carriage, and each ram is capable of raising a load of 35 tons, which gives a lifting capacity of 70 tons on each keel-block, as the load from the vessel's keel is normally carried half-way between the hinge and the ram. These rams are provided for the sole purpose of raising and supporting the load on the keel-blocks sufficiently to allow the collars supporting the load to be withdrawn and replaced during side-slipping operations.

The bilge-blocks on the cradles are provided with an adjustable three-piece wedge arrangement to facilitate operations during side-slipping.

The forward carriage is provided with a specially designed removable stem iron, and the after carriage carries folding quarter irons for centring the vessel on the keel-blocks.



Vessel being hauled up on cradle. Side berth in foreground.

Traverser.

The traverser consists of eight carriages which are coincident with the cradle carriages. They are constructed of steel, and each is mounted on sixteen double flanged cast steel rail wheels similar to those of the cradle. The carriages are provided with locking bars, so that each cradle carriage may be locked to a traversing carriage.

Each traversing carriage runs on two rails laid at right angles to and below the level of the main slipway rails and is surmounted with rails corresponding to the main slipway rails. When the traversing carriages are in the central position the main slipway rails over the upper part of the slipway consist of the portions of rails carried on top of the traversing carriages, and the fixed portions of rails carried on concrete foundations between the traverser rails.

Four of the traversing carriages are provided with stud link traversing chains which are attached with union screws to allow of tensioning the chains equally and taking up stretch or wear. These chains pass from one side of the traverser over driving sprockets on the traversing gear on one side of the slipway site and back through pipes underground to the other side of the slipway site, where they pass round idler sprockets and thence back to the opposite side of the traverser.

Haulage Winch.

The main haulage winch is electrically driven and is capable of exerting a pull up to 90 tons, measured at the point of attachment to the cradle, at a speed of 10-ft. per minute. Change gear is provided, which allows the empty cradle to be hauled up at a speed of about 35-ft. per minute, and a clutch is fitted to allow of it being lowered by a brake capable of sustaining the maximum pull of the vessel and cradle without actuating all the gear. There are two cast-iron hauling drums with machine-turned grooves for the two steel haulage ropes. The drive is through machine-cut steel gear, the first



One vessel on cradle and two on side berths.

reduction gear from the motor being double helical. The shafts run in gun-metal bushed bearings, and the whole of the main haulage gear is mounted on a steel framework carried on heavy concrete foundations.

*Slipway with Side-slipping Arrangements—continued.***Motor.**

The electric motor is operated by means of a drum type controller, and the electrical equipment is arranged for regulating the lowering of the cradle and vessel by potentiometer and dynamic control. An electric magnetic brake is fitted to the motor spindle, and is capable of independently sustaining the full load when the current is shut off.

Traversing Gear.

The traversing gear is arranged down one side of the slipway site and is driven by a separate motor designed for a traversing speed of 10-ft. per minute. The power is trans-

mitted to the traversing chain sprockets through shafting and steel machine-cut gearing. A friction device is incorporated in the drive to relieve the motor and other parts of the equipment from undue shock in the event of obstruction on the traverser rail tracks. The traversing arrangements are designed to insure that the torsional movement of the shafts under load should be as nearly as possible equal at the sprockets to assist in equal distribution of load on the chains.

Slipways with side-slipping arrangements designed on the system above described have been constructed at Macduff, Fraserburgh and Fleetwood, and installations are to be constructed in the near future on the same system at Peterhead and Grimsby.

Ceylon and Indian Notes.

Deep Water Quay for Colombo.

OVER a million rupees, it is stated, would be required if the recently proposed deep-water quay for the Colombo Harbour is to be constructed. A deep-water quay is considered by the authorities as absolutely essential to the development of the port if it is to rank with progressive ports in other parts of the world. There are very few harbours in the world to-day where ships do not have the advantage of coming alongside a quay to unload their cargo, and the absence of this facility in Colombo has been a great inconvenience to passengers as well as shippers.

The deep-water quay is part of the gigantic dock scheme for Colombo which was mooted as long ago as 1905. Both the consulting engineers in England and the local authorities are convinced that the wet dock is the only solution to the growing problem of harbour congestion. The alternative scheme for an outer harbour has been turned down for several reasons. The cost of the wet dock scheme was at that time estimated at £3,420,000 without reckoning the cost of land and buildings. The site proposed was the Bloemendhal swamp, about 115 acres in extent. The entire project, if it is to be carried out, would take nearly eight years.

Section by Section.

Investigations have established the possibility of carrying out the scheme part by part, and, should resources permit, it is proposed to make a start with the deep-water quay. Plans have already been submitted to Government, but a final decision has not yet been made as regards the site. The harbour engineer, who is at present in England, is conferring with the consulting engineers, and details regarding the project are being discussed.

It is stated that, with a deep-water quay, the transport of railway coal would be expedited, as it would then be possible to load the coal into the trucks direct from the steamer. In spite of the advantages offered by the successful completion of this project it is not considered to be of much immediate necessity as to warrant a loan and to place the country under onerous financial obligation. It is interesting to note that, whereas in 1893, 1,727 vessels with a gross tonnage of 2,514,595 used the Colombo Harbour, last year the vessels numbered 3,251. Passenger traffic, too, has increased in the same period from 232,775 to 326,675.

Moving Vessels in Colombo Harbour.

The Colombo Port Commission also considered, at the same meeting, the question of the charge for tug hire in addition to pilotage in the case of vessels moved from one berth to another and back again. It was decided that the existing charge should remain in force and that the notification of charges should be amended so as to remove any ambiguity.

Lake Development Scheme.

The Colombo Port Commission, at its last meeting, considered the proposed arrangements for taking over the maintenance of the waterways and quay walls of the Colombo Lake, up to and including the operation of the San Sebastian Canal Locks and pumping plant. The chairman briefly reviewed the previous history of the proposal, and subsequent approval by Government, that the maintenance of these works should be taken over by the Colombo Port Commission. The matter was discussed at length, and it was decided to call for a further report from the harbour engineer. The chairman undertook to write to the Director of Public Works stating that the Commission does not feel justified in taking over the maintenance of the water area until it has further information as to the present state of the works and the cost of putting them in good order.

Colombo Port Commission.

The recent application by Mr. Didi, the Maldivian representative in Colombo, to the Colombo Port Commission, to lease out a block of land with water frontage to erect the necessary offices for the purpose of his proposed inauguration of the steamer line to the Maldiv Islands, was further considered by the Colombo Port Commission at one of its recent meetings. The Commission was of opinion that it was undesirable to lease the particular block applied for with valuable water frontage for the purpose specified, and it was decided to recommend that the Maldivian representative be offered some other suitable plot without water frontage.

Storage of Petrol for Harbour Launches.

The recommendations of the Colombo Port Development Committee regarding a site for the storage of petrol and kerosene oil for the use of harbour launches were considered by the Port Commission recently. The Commission approved the proposals of the committee and decided that the application of the Asiatic Petroleum Co. (Ceylon), Ltd., be granted on a two years' lease at a monthly rental of Rs.100.

Lease of Colombo Harbour Coaling Land.

The Colombo Port Commission has decided to lease a plot of coaling land to Messrs. Narottam and Pereira, Ltd., for one year, as from January 1st, 1930, at the rate of Rs.8,000 per acre per annum.

Calcutta Port Trust.

According to the Administration Report of the Calcutta Port Trust for the year 1928-29 the value of the aggregate trade of the Port of Calcutta with foreign countries and other Indian ports has increased from Rs.33.03 crores to Rs.36.85 crores. Among the striking events of the year was the opening of the most important portion of the Commissioners' development schemes, namely, the King George's Dock. The number of vessels entering the port during the year under review amounted to 1,485 with a gross tonnage of 7,976,074 and a net tonnage of 4,818,831 tons. The total tonnage of goods, including both those handled over the Commissioners' wharves and jetties, and those which were unloaded and loaded in the stream, aggregated: Imports, 3,920,858 tons; and exports, 6,919,426 tons, a grand total of 10,840,284 tons. Those figures show an increase of 3.8 per cent. in the tonnage of shipping and 3.84 per cent. in the tonnage of goods over the figures of the previous year.

Receipts and Expenditure.

The total income of the Calcutta Port during the year under review amounted to Rs.341.83 lakhs, a figure exceeding by more than Rs.10 lakhs the amount assumed in the revised estimates for the year, viz., Rs. 331.57 lakhs, and showing, as compared with the actuals for the preceding year, an increase of about Rs.3 lakhs. The total expenditure amounted to Rs.321.72 lakhs, yielding a surplus on the year's working of Rs.20 lakhs. The whole of the surplus on last year's working has been carried forward to the new financial year. Thus the year 1928-29 closed, and the year 1929-30 opened, with a credit balance on Revenue Account of Rs.24.68 lakhs, the amount of the Revenue Reserve and Vessels' Replacement Funds on the same date being Rs.152.77 lakhs.

General Exports.

The total tonnage of the general exports shipped from the docks of Calcutta Port was 1,750,969 tons, and that of coal 2,644,256 tons, as against 1,837,371 tons of general exports and 2,817,443 tons of coal shipped in the preceding year. The exports of tea, shellac, gunnies, pig iron and miscellaneous goods increased, while those of wheat, seeds, rice, jute, cotton,

Ceylon and Indian Notes—continued.

hides and skins and manganese ore decreased. The shipment of shellac and pig iron are the highest ever recorded in any single year. The exports of tea (116,588 tons) showed an improvement, the increase being 3,600 tons or 3.2 per cent. over those of the previous year. The largest stock held in the sale tea warehouse was 94,780 packages, and at the tea transit sheds, which are used for river-borne tea, 77,790 packages.

Inland Vessels and Petroleum Wharves, Calcutta.

The year's earnings showed a small increase over those of the previous year, namely, from Rs.864,369 to Rs.870,154 in the year under review. The number of oil-carrying vessels berthed at Budge Budge during the year was 161, as against 176 in the preceding year. There was an increase in the importation of kerosene in bulk, accompanied by a decrease in that of case oil. Imports from America showed a drop of 22.8 million gallons, which, however, was set off by an increase in the imports from Burma of 16.18 million gallons, from Borneo of .006 million gallons, from Persia 2.15 million gallons, and from Russia 6.15 million gallons. The total traffic showed a net increase of 2.07 million gallons. The importation of petrol increased by 77,022 gallons. The importation of other oils, namely, liquid fuel, batching oil, lubricating oil and crude oil, increased by 1.72 million gallons from 28.15 million gallons to 29.87 million gallons. The total importation of all kinds of oil amounted to 131.76 million gallons, as compared with 127.89 million gallons in the preceding year.

General Matters.

The Calcutta Port Commissioners opposed, during the year under review, Mr. N. M. Joshi's Bill to amend the Indian Penal Code, and Mr. Haji's Coastal Trade Bill. They lent their support to Government's Bills, viz., Trades Disputes Bill and amendment to Workmen's Compensation Act. They were strongly opposed to any proposal to amend the Indian Factories Act and to apply to dock workers, suggesting that Government should take the necessary powers either by means of suitable amendment of the Indian Ports Act or by a Special Act.

Colombo's Foreign Trade.

The Ceylon Customs Returns for September provide interesting comparative figures regarding the Colony's trade in the first nine months of the year. The statement of Customs revenue shows a satisfactory position, in view of the depressed state of the staple industries. The import duties show a net increase of Rs.1,088,579, while export duties show an increase of Rs.229,003. Including sundries, the total gain under the

two heads is Rs.1,328,580. Port and other dues have gained a net increase of Rs.349,559, and the Cess for the Medical Wants Ordinance shows a gain of Rs.356,122. The total import duties amounted to Rs.31,071,627, and the total export duties to Rs.9,123,247, while sundries amounted to Rs.40,289. The grand total for Customs for the first nine months of the year is accordingly Rs.40,325,164, as compared with Rs.38,906,583. It is interesting to note that the export duty of rubber yielded Rs.159,580 less than in the previous nine months, while the yield of tea duties showed a gain of Rs.208,894. The total imports for the first nine months of 1929 were valued at Rs.308,045,671, as compared with Rs.304,278,073 for the corresponding period of last year. The total exports on the same basis of comparison were valued at Rs.313,961,734 for 1929. The total quantity of tea exported in the first nine months of this year amounted to 194,997,240 lbs., valued at Rs.164,076,571. The corresponding figures for last year were 187,600,700 lbs., and Rs.158,111,738 respectively. The total quantity of rubber exported in the first nine months of the year amounted to 140,027,427 lbs., valued at Rs. 69,551,138. Last year's figures were 91,089,082 lbs., valued at Rs.58,555,284.

Indian Customs Revenue.

The grand total of gross Indian sea and land Customs revenue (excluding salt revenue) collected during the month of September, 1929, amounted to Rs.4.02 lakhs as against Rs.4.42 lakhs in the preceding month and Rs.4.10 lakhs in September, 1928. The total revenue realised in the six months, April to September, 1929, was Rs.24.68 lakhs, as compared with Rs.23.54 lakhs in the same period of last year. To this, import duties contributed Rs.19.20 lakhs, export duties Rs.2.82 lakhs, Excise duties Rs.1.49 lakhs, and land customs and miscellaneous Rs.60 lakhs. Increases were noticeable in import duties on sugar, cotton yarn and grey and white piecegoods, liquors, motor cars and cycles and pneumatic tyres and tubes, in export duties on jute (raw and manufactured), and rice in land customs receipts and in Excise duties on motor spirit. On the other hand, import duties on tobacco, coloured piecegoods (cotton), yarn and textile fabrics (other than cotton and silk), mineral oils, metals, matches and match splints and veneers, iron and steel, silk piecegoods, outlay and hardware and artificial silk yarn showed decreases. The protective special duties on private imports during the six months ended September, 1929, aggregated nearly Rs.1.38 lakhs. The duties on Government stores, inclusive of protective duties collected thereon, amounted to Rs.25 lakhs, as compared with Rs.37 lakhs in the corresponding period of the preceding year.

Launch of River Gunboat for the Siamese Royal Navy.

MESSRS. VICKERS-ARMSTRONGS had the honour of receiving, on the 19th November, at their Naval Construction Works, Barrow-in-Furness, His Excellency Luang Bahiddhanukara and his wife, Madame Nuankhae Bahiddha, the lady having kindly consented to perform the launching ceremony of the Siamese gunboat "Sukhodaya." Commander Luang Jamnikolakarn was also present, together with Commander Phra Prabhin Phonyudh and Commander Phra Vichitr Navi, who have been stationed in Barrow superintending the construction of the ship. The Admiralty were officially represented by Captain A. Maitland-Dougall, of H.M.S. "Resource," the builders by Commander C. W. Craven (managing director of the Barrow and Newcastle works), and the principal members of his staff, and the engine builders (Messrs. R. and W. Hawthorn Leslie and Co., Ltd.) by Sir Archibald C. Ross, K.B.E. Mrs. Craven, Lady Ross and a number of British and foreign officers with their ladies were also on the launching platform to wish good luck to the ship on taking the water.

The "Sukhodaya" is a steel twin-screw ship, having the following characteristics: Length overall, 173-ft.; breadth over armour, 37-ft.; depth moulded, 15-ft.; mean draft loaded, 10-ft. 9-in.; displacement, 1,000 tons; designed speed, 12 knots.

The ship is generally similar to one built in 1925 for the Siamese Government by Messrs. Sir W. G. Armstrong, Whitworth and Co., Ltd., Walker-on-Tyne, and is for river, estuary and coastline patrol service.

She has an armour belt of nickel steel fitted for her full length, in addition to armour bulkheads and screens. The full length of the upper deck is plated with heavy steel of special protective quality, to afford protection against aerial attack and plunging fire.

The "Sukhodaya" carries a 6-in. B.L. gun forward and another aft in armoured gunhouses. In addition, four 3-in.

Q.F. high-angle guns are fitted amidships. Arrangements are made for the stowing of ammunition in their respective magazines and shell rooms under protection, the ammunition being supplied to the guns by means of high-speed hoists driven by electric motors. The latest system of fire control is being adopted for the 6-in. and 3-in. guns.

All the usual equipment for the proper working of the vessel is provided, including a 1½ k.w. Marconi wireless telegraphy set.

Oil is used for boiler fuel, and is stowed in large cross bunkers at the forward end of the boiler room.

The main propelling machinery consists of two sets of inverted vertical direct acting triple expansion engines, each set being complete with its own surface condenser. Each set of engines has three cylinders working on separate cranks placed at angles of 120 degrees with each other. The engines are capable of developing together a total of 850 I.H.P. on a full power trial of four hours' duration, when running at about 150 revolutions per minute, with a working pressure at the boilers of 225-lbs. per square inch.

The condensers are two in number of Weir's regenerative two-flow type, with a total cooling surface of 850 square feet, capable of maintaining a vacuum of 28-in. with sea water at 85 degrees Fahr.

Steam is supplied by two water tube boilers of the three-drum small tube type, having a total heating surface of 3,000 square feet, and arranged for burning oil only under the closed stokehold system of forced draught. All the engine room auxiliaries are of the most efficient type, and distilling and evaporating machinery is provided, capable of producing 15 tons of fresh water per day.

The electric generating plant consists of two steam-driven generators, and a small oil-driven generator placed on the deck for emergency purposes.

The Port of Rangoon.

Report of the Commissioners for the Year 1928-29.

Finance.

Revenue Account.

RECEIPTS for the year amounted to Rs.81,77,287 and payments to Rs.87,31,456, resulting in a deficit on the year's working of Rs.5,54,169. Comparing these figures with those of the previous year, receipts show a decrease of Rs.4,59,350 and payments an increase of Rs.3,53,245.

The decrease in receipts is due to a reduction in volume of the sea-borne import trade which is reflected in the falling-off in earnings under the heads of landing charges, demurrage, river due (imports) and crannage.

The increase in payments occurs mainly under the following heads:—(a) establishment, due to the operation of incremental scales of pay; (b) maintenance and repairs, due to the larger number of buildings, roads, moorings, etc., now being maintained as well as to the increasing age of assets such as wharves, pontoons, jetties, etc.; (c) upkeep of vessels, due to the addition to the flotilla of the new buoy vessel "Titan"; (d) dredging, due to special repairs to the dredger "Cormorant"; and (e) Traffic Department extraordinary expenditure.

Capital Account.

Payments, including repayment of the overdraft at the 1st April, 1928, amounted to Rs.43,11,138 and were financed from a loan raised in October, 1928. The nominal amount of the loan is Rs.50,00,000. It bears interest at 5 per cent. per annum and is repayable at par in 1958. The issue price was 97 per cent.

Reserve Funds.

The balance sheet shows that the total at the credit of these funds on the 31st March, 1929, was:—

Revenue reserve	Rs.
Fire and Marine insurance	56,45,543
Depreciation and replacement	30,57,980
	28,18,009
Total	1,15,21,532

Pilot Fund.

Receipts for the year amounted to Rs.6,64,309 and payments to Rs.7,05,326, resulting in a deficit on the year's working of Rs.41,017. Following the practice of previous years the deficit has been written off to Nett Revenue account, leaving a balance of Rs.82,118 at the credit of that account on the 31st March, 1929. With a view to cutting down the deficit in the current year's working it has been decided to reduce the rebate on pilotage fees, introduced from 1st July, 1925, and increased from 10 per cent. to 20 per cent. from 1st April, 1926, to 10 per cent. with effect from 1st October, 1929.

Traffic.

Number of Sea-going Vessels entering the Port.

During the year 1,609 steamers with an aggregate nett tonnage of 4,202,398 and 127 sailing ships with an aggregate nett tonnage of 10,364 entered the port. The number and tonnage of vessels compared with the previous year show an increase of 81 in number and 322,412 in nett tonnage. Of the total number of vessels that entered the port 1,553 vessels brought cargo for Rangoon and of this number 967 vessels came alongside the Commissioners' wharves, pontoons and jetties to discharge.

Sea-borne Trade.

The following table shows the tonnage of the sea-borne trade of Rangoon for the last five years:—

Description of trade.	1924-25 Tons	1925-26 Tons	1926-27 Tons	1927-28 Tons	1928-29 Tons
Imports	1,260,946	1,439,249	1,479,873	1,968,688	1,592,988
Exports	3,336,513	3,913,698	3,501,557	3,575,075	3,775,934
Transshipment	8,657	11,420	12,894	15,068	16,210
Total	4,606,116	5,364,367	4,994,324	5,558,831	5,385,132

and the following tables show the quantities and proportion of the above trade handled over the Commissioners' premises:

Description of trade.	1924-25 Tons	1925-26 Tons	1926-27 Tons	1927-28 Tons	1928-29 Tons
Imports	810,813	889,996	940,977	1,125,365	929,894
Exports	639,357	799,874	773,513	898,777	1,060,171
Transshipment	1,964	1,625	3,445	3,461	2,854
Total	1,452,134	1,691,495	1,717,935	2,027,603	1,992,919

Proportion of trade passing over Commissioners' premises.	1924-25 Per cent.	1925-26 Per cent.	1926-27 Per cent.	1927-28 Per cent.	1928-29 Per cent.
Imports	64.3	61.8	63.6	57.1	58.4
Exports	19.2	20.4	22.1	25.1	28.1
Transshipment	22.7	14.2	26.7	22.9	17.6

River-borne and Rail-borne Traffic over Commissioners' Premises.

The following table shows the tonnage of river and rail-borne traffic for the last five years. The totals for 1928-29 under the heads of river-borne landed and rail-borne are records for the port:—

Description of traffic.	1924-25 Tons	1925-26 Tons	1926-27 Tons	1927-28 Tons	1928-29 Tons
River-borne traffic—					
Landed	451,239	473,474	465,382	509,955	563,113
Shipped	352,932	370,033	374,880	375,131	329,397
Rail-borne traffic	487,557	655,154	608,423	748,746	868,728

Passenger Traffic.

During the year 349,910 passengers by sea landed at, and 328,390 embarked from the Commissioners' wharves and jetties as compared with 347,164 and 314,289, respectively, for the previous year.

Warehouses and Magazine.

The tonnage received into the duty-paid and bonded warehouses shows an increase of 2,525 tons over the total of the previous year. With a view to centralising the work of warehousing duty-paid goods, eleven godowns adjoining the west end of Latter street wharf were converted into a warehouse which was opened for traffic on the 21st May, 1928. The old warehouses at Latter street, Mogul street, Sule Pagoda wharf and Phayre street were closed from that date. The change has resulted in economy in working and has proved of great advantage to the trading public.

The revenue derived from the magazine shows an increase as compared with the previous year. The licensed capacity remains unchanged at 68,900 lbs. explosives and 290,000 detonators.

Lands and Buildings.

The revenue from lands and buildings was Rs.7,318 more than that of the previous year. The following table shows the main sources of revenue under this head for the years 1927-28 and 1928-29:—

Sources of Revenue.	1927-28 Rs.	1928-29 Rs.
Lands	4,35,952	4,02,246
Godowns	5,07,949	5,68,131
Refreshment stalls	37,498	38,340
Other buildings	53,989	33,989
Total	10,35,388	10,42,706

The increase under the head of godowns is due to the increase in the number of godowns available for letting, the actual number at the 31st March, 1929, being 190, as compared with 163 at the 31st March, 1928. The decrease under the head of other buildings is due to the dismantling of the buildings on the site of the old Strand market.

Marine.

Surveys of the River and Port Approaches.

New surveys of the following standard river sheets were undertaken and plotted during the year:—

Rangoon Harbour No. 1 sheet;
Harbour limits to North D'Silva Point, No. 2 sheet;
North D'Silva Point to Kyauktan or Hmawun Creek,
No. 3 sheet, and
Wharves and moorings of the harbour.

The positions of 7 new beacons erected on the banks of the Pegu river to facilitate future surveys were fixed and the numerical values for the co-ordinates were computed.

The surveys carried out during the year show conspicuous changes in two localities only, namely, the approach to the river mouth and the neighbourhood of the Hastings and Liffey shoals. In the former area the extension to the south-eastward of the shoal water fringing the coast has continued and the ship canal has in consequence been narrowed. The advance of the shoal has been most marked in the neighbourhood of the upper western buoy where the 12-ft. contour has advanced some 3,000-ft. in 15 months. The area is engaging the careful attention of the survey staff.

The changes in the Liffey and Hastings shoal areas are directly due to the influence of the King's Bank wall and a state of change must be anticipated in this area for some years to come. A channel has formed along the face of the wall and after passing clear of the wall curves to the westward and should shortly connect up with the northern end of the deep channel lying along the right bank of the river.

*The Port of Rangoon—continued.***Special Surveys.**

The following special surveys are in progress:—

Erosion Survey.—The work consists of fortnightly examinations of the erosion of the river bank at 3 selected stations—one on the right bank of the Pegu river, one at Seikkyi and one between Deserter's creek and Elephant Point. Useful information is being obtained.

Tidal Stream Survey.—This survey is addressed to the double purpose of observing the run of the tidal streams in the mouth of the Pegu river, Monkey Point channel, Liffey reach and King's Bank channel and also to the detailed examination of the Liffey reach and its foreshore. The stream observations of this survey are very instructive and show conclusively that the ebb stream which flows along the face of the King's Bank wall does not cross the Hastings shoal into the Liffey channel, but is deflected by the shoal to the westward and joins the deep channel along the right bank of the river. This portion of the ebb stream cannot therefore be held responsible for any erosion of the left bank of the river. Observations of the erosion of the high land have been made monthly at 26 stations between Monkey Point and Elephant Point. The greatest annual erosion occurs at Elephant Point and amounts to 80-ft. At D'Silva light station it is 57-ft. and at Deserter's creek light station 47-ft. per annum.

Dredging.

During the year the dredger "Cormorant" worked mainly in the Danidaw reach, Western approach and Monkey Point channel. She dredged for 192 days, removed 675,000 tons of sand and silt and maintained average depths of 4½-ft., 15-ft., and 14 to 17-ft., respectively.

The dredger "Hastings" worked on the berths at the wharves and jetties. She dredged for 136 days and removed 166,000 tons of spoil.

Commissioners' Flotilla.

The various units of the flotilla were overhauled and necessary repairs carried out during the year. The general condition of the craft is reported to be good. The launches "Stella" and "Sule" were condemned and have since been sold. The additions to the flotilla during the year were:—

- (a) S.B.V. "Titan" built at a cost of Rs. 4,62,562 by the Irrawaddy Flotilla Company, Ltd., at their Dalla Dockyard and commissioned on 1st September, 1928, and
- (b) Motor boat "Tern" built at a cost of Rs. 7,500 at the Government Dockyard, Dawbon, and commissioned on 5th October, 1928.

Tidal and Time Ball Observatory.

During the year 129 transit observations of the sun and 78 of the stars were made. Meteorological observations were recorded and results published in the local papers. The lowest day temperature recorded was 79.2 deg. on the 18th and 19th July and the highest was 99.6 deg. on the 8th April, 1928. The rainfall for the year amounted to 97.68 inches against 89.75 inches in the previous year.

The self-registering tide gauge worked satisfactorily during the year except for the period 21st-26th March, 1929, when the instrument was under repair. The highest recorded high water during the year was 21-ft. 3½-ins. on 30th October, 1928 (a.m. tide) and the lowest low water was 1-ft. on 25th February, 1929 (p.m. tide).

Wireless Installation.

The wireless installation for communication between the pilot station and the Commissioners' office has continued to give excellent service. The fixed station set is now housed in a special room on the roof of the Commissioners' new office building. A Radio Officer and three operators have been appointed and communication, which is now carried out almost exclusively by telegraphy instead of telephony, is practically continuous.

A long range receiver has been installed for the reception of time signals from Europe and other stations.

The Government Telegraph Office at Elephant Point was closed on the 15th January, 1929, and the work of transmitting information regarding vessels entering the port is now carried on by the Commissioners' wireless service. The information thus received is passed on to the Government Central Telegraph Office which continues to supply it to the public through the official Shipping Gazette.

Casualties to Shipping.

Casualties to sea-going vessels during the year numbered 11. Three of the vessels were in charge of pilots and eight in charge of assistant harbour-masters. Departmental enquiries were held and resulted in one assistant harbour-master being warned and another being limited temporarily to the handling of ships not exceeding 430-ft. overall. In the remaining cases no further action was found to be necessary as regards the pilots or assistant harbour-masters.

New Works and Capital Expenditure.**New Works.**

Work on the development schemes referred to in last year's administration report continued throughout the year and progress made is detailed below:—

- (i) **Wharves for Sea-going Vessels.**—The detailed plans and estimate amounting to Rs.47,75,000 for joining up Latter street and Sule Pagoda wharves by a ferro-concrete wharf to provide an additional berth 515-ft. long with a double storeyed transit shed were sanctioned by Government in June, 1928. The site was cleared and handed over on the 1st November, 1928, to the special construction staff appointed by and working under the direction of the Commissioners' Consulting Engineers. The work of levelling the area, laying temporary lines, and erecting offices and sheds was started immediately. The first consignment of plant and materials was delivered on the site on 18th November, 1928, and by the end of the year the staging for the construction and sinking of cylinders had been completed and a start made with the casting of the concrete cylinders and piles. An estimate amounting to Rs.22,400 for sinking borings and driving test piles along the Barr street foreshore in order to investigate the suitability of the site for the extension eastward of Sule Pagoda wharf was sanctioned and work commenced in February, 1929.

- (ii) **Inland Vessels Traffic at Lanmadaw.**—

- (a) Temporary Rice depot.—The work of equipping this depot with cargo-boat jetties and installing electric lights along the new roads was completed early in the year.

- (b) New Commissariat depot, Crisp street.—In 1926 an arrangement was entered into between the Military Authorities and the Port Commissioners whereby former agreed to exchange the site and buildings of the Commissariat depot at Godwin road for a new depot to be erected by the Port Commissioners on a site near Crisp street. An estimate amounting to Rs.1,40,000 for the construction of the new depot was sanctioned in May, 1928, and the work was completed after the close of the year.

- (iii) **Inland Vessels Traffic at Botatoung.**—Nineteen new godowns with a total floor area of 61,296 sq. ft. and two cargo-boat jetties were completed and opened for traffic during the year.

- (iv) **Import Salt depot, Upper Pazundaung.**—Additions to this depot during the year included four new salt godowns with a total capacity of 6,600 tons, a godown and office for use by the Customs, two small godowns for storage of gunnies, three offices for the use of salt importers, and electric lighting along the roads and in the office and durwans' quarters.

- (v) **Development of Dawbon Estate.**—Negotiations for the purchase of 90.707 acres of land on the Pegu river referred to in paragraph 18 (v) of last year's administration report were concluded during the year and the purchase price of Rs.1,13,383-12-0 was paid over to the Development Trust.

The progress made on works other than those embodied in the Port development schemes referred to in the preceding paragraph is detailed below:—

- (i) **King's Bank Reclamation Scheme.**—The work of reclaiming an area of approximately 3 acres behind the upper end of the wall was completed in June, 1928.

The training wall completed in 1927 remained in good condition throughout the year. The channel alongside the wall has improved in width and depth but there has been no appreciable scour along the apron. The area behind the wall has now silted to a maximum of 15-ft. above zero of the tide gauge.

- (ii) **Judah Ezekiel Street Project.**—Work carried out in this area during the year included the closing of the old road and the construction of a new tar macadam road with a paved footpath; the opening out of a large circulating area at the river end of the new road; the revetment of the river bank, and the provision of a pontoon jetty and sampan landing stage. The road and jetties were opened for traffic in September, 1928.

- (iii) **Depot for Coal and Mooring Plant at King's Bank.**—With a view to providing additional room for traffic on the left bank of the river the Commissioners' stocks of coal and mooring plant, stored on the foreshore at Botatoung and Phayre street, were removed to a new depot established on the recently reclaimed land behind the King's Bank wall. The new depot is being equipped with a temporary jetty and pontoon for coaling launches;

The Port of Rangoon—continued.

with capstans, bollards and chain slides to facilitate the movement of heavy chains; with a concreted area for storage of heavy plant, and with a steel pile jetty and crane for handling buoys and mooring plant. The sanctioned estimate for the project amounted to Rs.1,30,865 and by the end of the year the bulk of the work comprised in the estimate had been completed.

- (iv) **Coastal Depots, Botatoung.**—An estimate amounting to Rs.1,65,145 for building a new depot for the Tavoy steamers on the western side of the Arracan coastal depot was sanctioned in June, 1928. The depot will be equipped with a transit shed, pontoon, jetties with two covered approach bridges and necessary roads. The construction of the foundations for the transit sheds and for the shore abutment for the bridge spans were completed by the end of the year.
- (v) **Houses and Quarters for Staff.**—Two houses in Windmere Gardens for the use of senior assistants were completed and occupied during the year. An estimate amounting to Rs.4,77,350 for building 8 semi-detached houses and 4 flats on the Commissioners' land near Monkey Point was sanctioned in July, 1928. The houses and flats will be occupied by the assistant harbour-masters. Construction started in August, 1928, and was nearing completion at the end of the year. Quarters built at King's Bank for the workmen employed on the King's Bank Reclamation Scheme were, on completion of that scheme, handed over for the use of the heave-up boats crews. During the year the accommodation at King's Bank was increased by the transfer of 3 blocks of quarters from the Brooking street wharf area. These additional quarters were occupied by the lascars of the Deputy Conservator's department. The number of employees living in the settlement at King's Bank on the 31st March, 1929, was approximately 170.
- (vi) **Land.**—In addition to the purchase of 90.707 acres of land on the Pegu river referred to in paragraph 18 (v) of this report, the following areas of land were purchased during the year:—
- 6.275 acres being a portion of the old bed of the Gyaungwaing creek and comprising holdings Nos. 46, 47 and 49 in survey block 31B, 65C in survey block 40A and 82A in survey block 40B for Rs.3,137-8-0.
 - 93.36 acres being a portion of the Syriam battery land on left bank of the Rangoon river for Rs.1,03,700, and
 - 0.086 acre being plots Nos. 28, 29 and 31 in block 26A, Kemmendine, for Rs.3,138-12-0.
- (vii) **New Offices.**—The offices were completed and occupied on the 21st September, 1928.

*General.**Kanoungto Creek, Chord Cut and Twante Canal.*

A copy of the report of Messrs. Rendel, Palmer and Tritton, Consulting Engineers, on the subject of the Kanoungto creek, Chord cut, Twante canal, etc., referred to in last year's administration report, was received from the Government of Burma in October, 1928. Among the conclusions and recommendations set out in that report is one to the effect that the Rangoon port limits should be extended to include the Kanoungto creek, Chord cut and Twante canal. The report is under the consideration of the Government of Burma.

Rangoon Playgrounds Committee.

In February, 1929, the Government of Burma drew the Port Commissioners' attention to paragraph 16 of the report of the Playgrounds Committee which recommends that the bill necessary to give effect to the recommendations of the Committee should provide for compulsory annual contributions from Government, the Corporation of Rangoon, the Rangoon Development Trust and the Port Commissioners and asked whether the Port Commissioners agreed in principle to contribute on equal terms with the other three authorities to the expenses of the Committee. The Port Commissioners replied that they were unable to agree in principle to make a permanent contribution towards the income of the Committee on the grounds that expenditure from Port funds is limited by statute to that which is for the sake of the port.

Erosion of the Foreshore of the Indo-Burma Petroleum Company's Land at Seikkyi.

In last year's administration report it is stated that the Commissioners had under consideration a letter from the

Managing Agents of the Indo-Burma Petroleum Company, Ltd., to the effect that they intended to file a suit against the Port Commissioners for damage to the foreshore of the Company's property at Seikkyi resulting from the erection of the King's Bank wall.

Further correspondence and interviews had with the Managing Agents during the year resulted in their proposal that the whole matter in dispute be submitted to arbitration. Before accepting this proposal the Commissioners agreed to ask their Consulting Engineers, Sir Alexander Gibb and Partners, to report on the several questions at issue and to take the opinion of Counsel in London in regard to—

- the Commissioners' obligations at common law or under statute to maintain and, if rendered necessary by modern conditions, improve the channels and approaches to the port and whether under such obligations, if any, they would be liable for damage caused to land or property of private persons by tidal or other waters the course or flow of which was affected by carrying out such obligations without negligence being shown;
- the Commissioners' liability at law if it can be proved that the construction of the King's Bank Training wall has had a prejudicial effect on the property of the Indo-Burma Petroleum Company at Seikkyi, and
- whether in that or other event the Commissioners should agree to submit their case to arbitration.

Counsel appointed were the Rt. Hon. H. P. Macmillan, P.C., K.C., and Mr. H. St. John Raikes, K.C., and their opinion was to the effect that in view of the advisability of obtaining a conclusive decision upon the engineering side of the case before entering upon the legal question, the dispute between the parties should be submitted to an arbitration tribunal competent to deal with the engineering questions in controversy, presided over by some person of legal experience. The Consulting Engineers supported the proposal to accept arbitration on the technical points involved.

On receipt of these opinions the Commissioners replied to the Managing Agents of the Indo-Burma Petroleum Company to the effect that they agreed to submit to arbitration in London before two arbitrators, competent to deal with the engineering questions in controversy, to be chosen by the parties respectively and an umpire of legal experience to be agreed upon between the parties. The Managing Agents' reply to the Commissioners' proposal is awaited.

Audit of the Commissioners' Accounts.

The question of the audit of the Commissioners' accounts referred to in paragraph 27 of last year's administration report has been settled by the Commissioners agreeing to accept the Government of Burma's suggestion that the audit of their accounts should be carried out by the Director of Commercial Audit, who employs a staff trained in commercial accounting and auditing. The proposal has been sanctioned by the Government of India and will be brought into effect from the 1st April, 1930.

Eastern Grove, Spit and China Bakir Lights.

In January, 1929, the Port Commissioners were informed that the Government of India intended to bring the Indian Lighthouse Act into force from the 1st April, 1929 and to accept the opinion of the provisional Central Advisory Committee that the Eastern Grove, Spit and China Bakir lights should be classed as "local lighthouses" for the purposes of that Act.

This means that the superintendence and management of these three lights, which is now carried out by Government under the provisions of the Burma Coast-Lights Act will be transferred to the Port Commissioners from the 1st April, 1929, and both capital cost and cost of maintenance will have to be met from the Rangoon Port funds from that date.

The Port Commissioners are preparing a scheme for managing and financing the cost of lighthouses on these stations and, pending completion of that scheme, Government have agreed to continue to manage the existing lights and charge the cost of maintenance to the Port Commissioners.

References from Government.

The Commissioners were consulted by Government on the following matters during the year:—

- (1) Bill to amend the Inland Steam Vessels Act;
- (2) Trade Disputes Bill;
- (3) Bill to amend the Indian Merchant Shipping Act;
- (4) Appointment of Merchant Shipping Advisory Committee under the powers conferred by section 8 of the Indian Merchant Shipping (Amendment) Act, 1928, and
- (5) Reservation of the Coastal Traffic of India Bill.

Notes of the Month.

Hamburg Port Railway Improvements.

A Bill is being brought in, in the State Parliament, which provides for the expenditure of Rm.840,000 (£42,000) upon port railway improvements and extensions. The most important work is the reconstruction of the large shunting yard known as "Kairechts," which serves the harbour basins on the right bank of the Elbe. The cost of this work is estimated at Rm.560,000. A further sum of Rm.150,000 is to be spent on establishing additional communication with the Reich railway line Hamburg-Harburg-Wilhelmsburg at Veddel and a direct line between the shunting yard "Kairechts" and the station "Hamburg-Sud" is to cost Rm.130,000. It is proposed to raise the necessary funds by means of a loan spread over three years, and the work will also be distributed over a similar period. In the first year (1930) the most urgent improvements necessary at the shunting yard "Kairechts" are to be carried out at a cost of Rm.350,000. The remainder of the work during the second and third years to be undertaken in conjunction with the Reich railway authorities. The work is said to have become necessary owing to the increased goods traffic, particularly the imports of tropical fruits. There is also said to be a decrease in the inland shipping traffic on the Upper Elbe to the advantage of the railway.

Shipping Lines Amalgamate.

His Majesty's Consul-General at Valparaiso (Mr. C. Graham) reports that, according to a report received from His Majesty's Consul at Magallanes, the shipping lines owned by Messrs. Braun and Blanchard and Messrs. Menendez Behety, both of Magallanes, are being amalgamated with a view to inaugurating a shipping service for Chile, Argentine, Uruguay and Brazil. It is understood that the new organisation will receive a subsidy from the Chilean Government in consideration of the extension of their service to the Atlantic Coast of South America.

Flensburg Free Port.

The municipal authorities of Flensburg have issued a statement in regard to the working of the free port during the five and a half years since its construction. The total traffic in goods has increased from 47,488 tons in 1923 to 86,402 tons in 1928, which is considered altogether unsatisfactory. The anticipated erection of industrial undertakings within the free zone has not taken place, and the town is saddled with considerable expense in consequence. The total cost of construction, together with equipment, amounted to Rm.1.6 million, and the estimated value of the free port and equipment is Rm.1.1 million, of which the grain warehouse is estimated at Rm.700,000, and the sheds, cranes, etc., at Rm.400,000. In consequence of the free zone having recently been taken over by the Flensburg Freihafen und Lagerhaus A.G. traffic has increased, particularly to Denmark.

Recent Sales of Dredging Plant.

"Port of London Authority Hopper No. 17." 1,000 cubic yards capacity, built 1911. Sold to the Cargo Fleet Iron Co., Ltd., Middlesbrough, and re-named "Cargo Fleet No. 2."
"Port of London Authority Hoppers Nos. 16, 19 and 21." Steam hopper barges, 1,000 cubic yards capacity, built 1911. Sold to Sir John Jackson (Singapore), Ltd., and re-named "J.J.12," "J.J.13," and "J.J.14."
"Cargo Fleet No. 1." Steam hopper barge, about 500 tons capacity, built 1899, fitted with new boiler 1928. Sold to Tilbury Contracting and Dredging Co., Ltd.
"S.W.R. No. 1." Steam hopper barge, 400 cubic yards capacity, built 1893. Sold to R. H. Kirkley, of Sunderland.
"Harrington." Bucket dredger, 237 tons gross. Sold by the Harrington Harbour and Dock Board.
Hoppers "Nos. 5 and 6." Steam hopper barges, 365 tons gross.
"Walter Glynn." Self-propelled bucket dredger, 551 tons gross, built 1895.
"Brancker." Self-propelled suction dredger, 2,480 tons gross, built 1893.
The last three named vessels were sold by the Mersey Docks and Harbour Board.
All the above craft were disposed of through the medium of Messrs. Kellocks, the well-known shipbrokers, who have for sale under instructions from the High Commissioner for India the suction dredgers "Sir George Lloyd," "Colaba," "Kalu," and "Jinga."

Hamburg Port Developments.

The new quayside fruit shed No. 24, in the course of erection on the Versmannkai alongside the Baaken Harbour basin, will be completed in November in time for the opening of the tropical fruit season.

Hamburg-America Line.

According to a Press notice, the results of the first ten months' trading show signs of improvement in the passenger traffic and satisfactory development in the freight business. Work on the vessels "Bayern," "Baden" and "Wurttemberg" will be commenced shortly, and these vessels when finished will be placed on the run to South America. It is anticipated that the annual dividend will not be less than last year (7 per cent.).

Renewal of the Weser Dock at Doerverden.

The Vereinigten Stahlwerke A.G., Duesseldorf, have recently received a technically remarkable order in the field of hydraulics. This concerns the renewal of the out-of-date Weser lock installation at Doerverden, near Bremen, involving a new type of construction. Instead of the former sluice-gate system, so-called rolling sluice-gates are to be built according to a specially patented construction, which is to dam the Weser in two sections of 42 metres and 24 metres inside width. This new form of construction has not hitherto been employed in these dimensions. The construction, which is to be carried out by the bridge building department of the Vereinigten Stahlwerke A.G., including machine and electrical equipment, represents an undertaking worth about three-quarters of a million Reichsmarks. The machinery equipment will be supplied by the Demag, Duisburg.

Bremen's Sea Traffic in October, 1929.

The retrogressive movement in Bremen sea shipping traffic ceased during October, 849,080 net registered tons arrived as against 744,379 net registered tons in September and 796,700 net registered tons in October, 1928. In the period January to October, 7,554,890 net registered tons arrived, compared with 7,474,038 in the previous year. The increase in traffic, therefore, amounts to approximately 81,000 net registered tons.
Sea goods traffic of the five most important Weser ports increased in October, being usual at this season, and imports and exports together reached the figure of 718,600 tons against 566,500 tons in the previous month and 669,000 tons in October of the previous year. Imports increased to 505,200 tons, especially due to larger imports of grain and cotton, thus exceeding the previous month by 106,700 and the same month in the previous year by 41,900 tons, and, at the same time, also the former figures (480,800 tons in October, 1927). Exports were 213,400 tons, or 45,400 tons more than in September and 7,600 tons more than in October, 1928. A total of 5,756,200 tons, against 5,399,300 tons in 1928 was imported and exported during the past ten months (that is, 6½ per cent. more). Of this increase 117,900 tons fell to export and 239,000 tons to import. Imports of English coals increased by 173,900 tons, imports of all other goods by 65,100 tons.

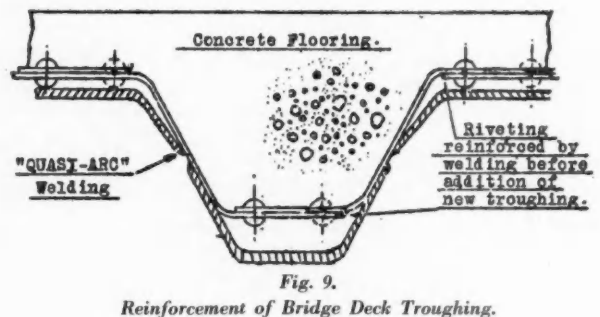
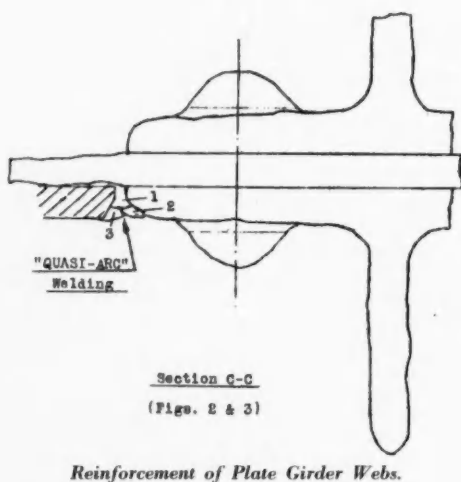
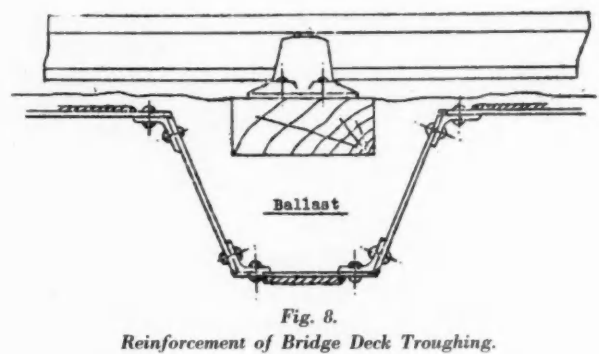
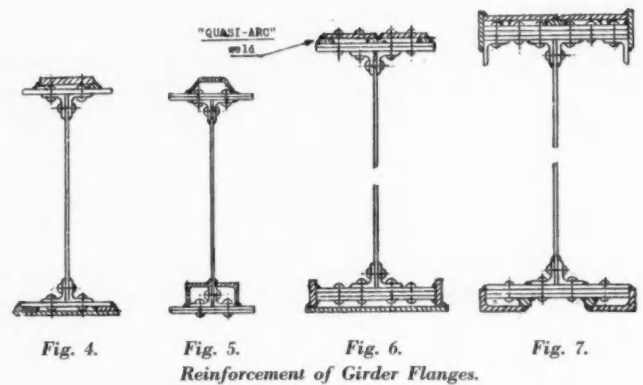
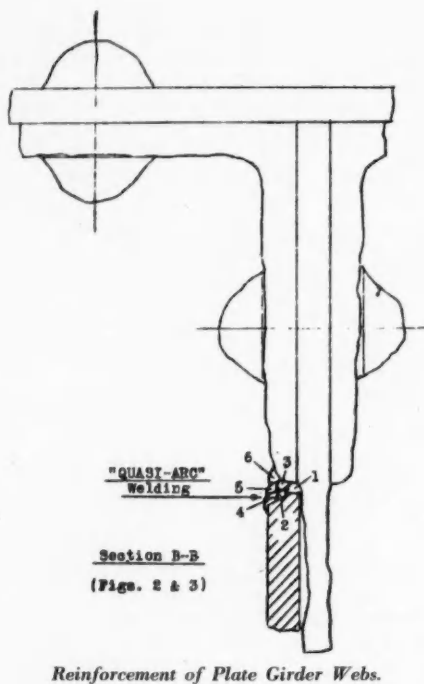
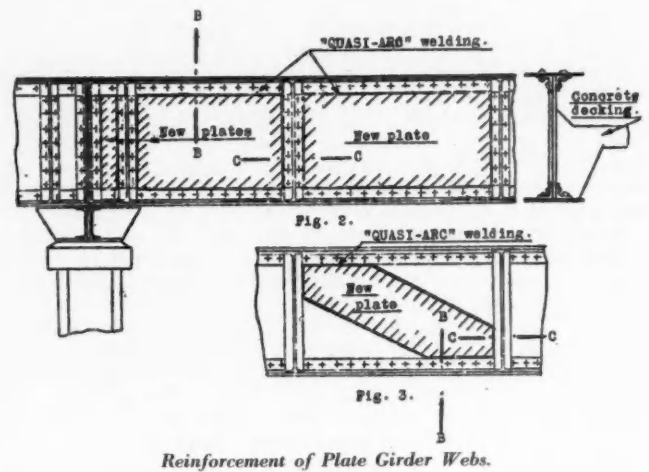
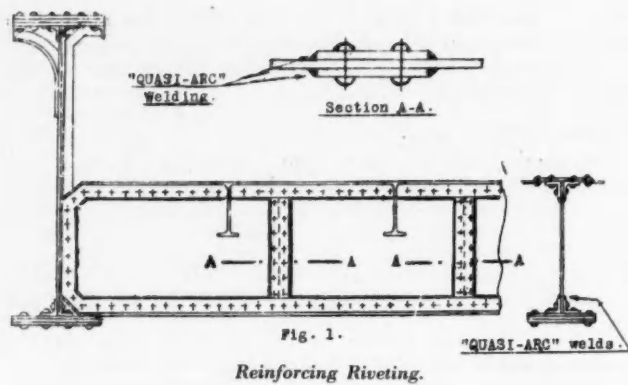
Port Dues in Yugoslavia.

The Department of Overseas Trade has received from the Commercial Secretary at Belgrade the following list of official rates of exchange for the payment of port dues in Yugoslavia during the month of November, 1929, which appeared in the "Official Gazette" of 29th October:—

	Dinars
1 Gold Napoleon ...	218-00
1 Pound Sterling ...	276-00
1 American Dollar ...	56-50
1 Canadian Dollar... ..	56-20
1 German Mark (Gold) ...	13-52
1 Belga	7-90
1 Brazilian Milreis ...	6-80
100 Gold Francs	1095-70
100 French Francs	222-40
100 Italian Lira	296-00
100 Dutch Florins	2277-00
100 Roumanian Leis	33-75
100 Danish Crowns	1513-60
100 Swedish Crowns... ..	1518-00
100 Norwegian Crowns ...	1513-60
100 Pesetas	812-60
100 Greek Drachmas... ..	73-50
100 Finnish Marks	142-10
100 Latvian Lat	1089-60

Personal enquiries regarding shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

Welding Dock and Harbour Structures.



Welding Dock and Harbour Structures.

THE art of welding structures by the electric arc process has been sufficiently advanced in this country now for engineers to formulate some idea of the types into which the various structures fall for welding purposes, and it is proposed to give a brief outline of these, with examples from actual practice in this country. It may be of interest to note that all the sketches are reproduced from plans of structures actually in process of being strengthened. Minor alterations have been made in one or two cases to render the sketches suitable for general reference, and, while they are not, from the draughtsman's point of view, quite as finished as our readers are accustomed to find in these columns, we are convinced that they are sufficiently clear to indicate their purpose to engineers.

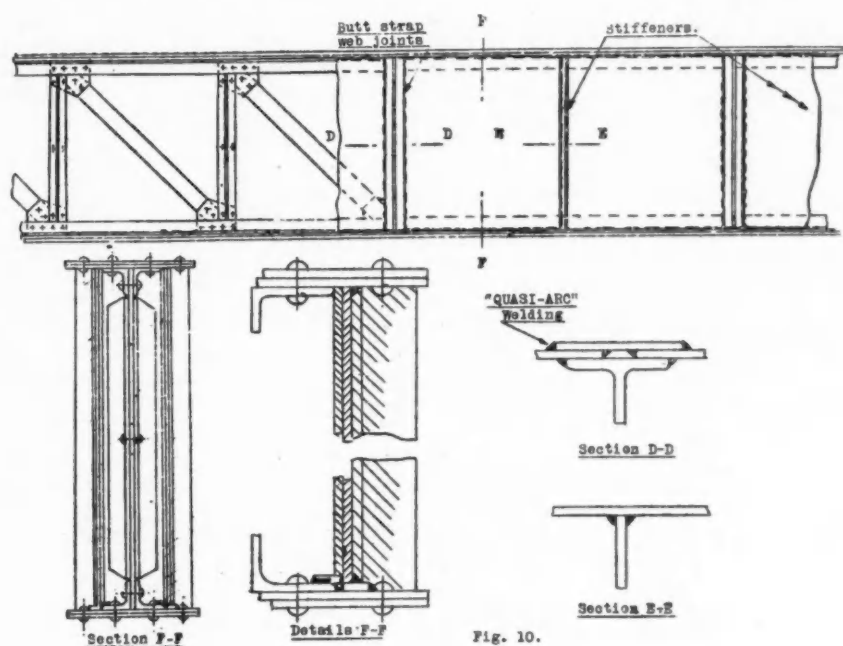


Fig. 10.

One of the simplest forms of strengthening is the reinforcement of flange angle and web splice cover plate rivets, as shown in Fig. 1. By this method the riveting can be strengthened to any desired degree or superseded altogether. In the latter case the angle or plate through the line of rivet holes becomes the weakest section in the joint. The same applies in the case of rivets supporting girder end brackets.

Many cases arise in which it is found necessary to reinforce plate girder webs either because they are badly corroded or because they are required to carry heavier shear stresses due to extra loading. This can be effected either by welding fresh web panels to the flange angles and stiffeners, as shown in Fig. 2, or, where permissible, by welding on flat strips, as indicated in Fig. 3. In the latter case the added material is placed in line with the tensile stresses acting across the panel as in lattice girder ties. The second method should be employed wherever possible, as it is cheaper, quicker and preferable from the welding standpoint.

Where complete panels are welded in, as in the former case, No. 10 and No. 8 gauge uranium and overhead electrodes should be employed. Care should be taken to ensure penetration on to the old web and the heat in the work should be kept as low as possible to minimise contractional stresses, always taking care that the welding goes through the full section of the joint.

It will be realised that there are many methods of reinforcing girder flanges by welding on additional plates or sections to increase the cross-sectional area. Several are shown in Figs. 4, 5, 6 and 7. Prevailing circumstances will generally decide the most suitable form to adopt, but, needless to say, the amount of welding required should be minimised as far as possible on the score of economy, and overhead welding replaced by "flat" when practicable. Here again, the heat in the plates should be kept low by welding intermittently to eliminate residual contractional stresses.

The arrangements shown in Figs. 6 and 7, in which new plates are welded to the sides of the flanges, may not be practicable in some cases owing to the irregularity of the edges. However, this method has some advantages, one of which is that the flange rivets are reinforced and corrosion between the flange plates prevented.

When the heads of the flange rivets are covered by the added material, as in Figs. 4, 5, 6 and 7, any loose rivets that may subsequently appear in the flange angle riveting may be replaced by welding the horizontal legs of the angles to the flanges, as indicated in Fig. 7.

Bridge troughing may be strengthened in several ways, two methods being shown in Figs. 8 and 9.

The first, Fig. 8, is applicable in cases where it is possible to insert the upper plate underneath the rails without disturbing the track. In the second method, Fig. 9, the new material is applied on the underside only, which is often of considerable advantage, especially when there is continual traffic running over, or concrete flooring above. Owing to the comparatively light plating of which built-up troughing is composed, care should again be exercised in eliminating contractional stresses by welding intermittently.

Often where considerable strengthening is required it is advisable to weld on additional members. Thus, as shown in Fig. 10, a lattice girder may be reinforced by welding web plates direct to the flanges outside the main angles, and in a similar manner a plate girder may be strengthened by welding on a secondary system of ties and struts. In the former case, inspection holes should be left in the new web plates.

Reverting to the strengthening of plate girder webs by welding on new plates, precautions should be taken against corrosion on the inner surfaces of the new and old webs as consequent rusting may tend to force the new plates out.

This may be allowed for by forcing tar or bitumen between the plates at low pressure. The same applies whenever a box section is formed by the added material, when plates should be welded over the ends of the flanges if practicable, or other means taken to seal intervening space, which may be filled with tar or bitumen if considered necessary.

When the existing structure is of wrought iron, as in most of the older bridges, it is important to note that the strength of the welding fillet between the old and the new material must be calculated on the sectional area of attachment on the wrought iron (see XX., Figs. 11 and 12), and its shear strength, which is lower than that of the weld metal.

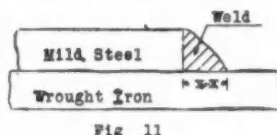


Fig. 11



Fig. 12.

The fillet section shown in Fig. 12 is more economical for this reason and should be adopted as far as possible.

We are indebted to the Quasi-Arc Co. for permission to reproduce these sketches, showing jobs welded with their electrodes.

Vickers, Limited.

Mr. G. R. T. Taylor has resigned his appointment as deputy chairman of Vickers, Ltd., but retains his seat on the Board. Mr. G. G. Sim, C.S.I., C.I.E., has been appointed deputy chairman in his place. Mr. J. Reid Young, C.A., has been appointed secretary to the Company in place of Mr. Sim.

Port of Waterford, Irish Free State.

The Commissioners for Improving the Port and Harbour of Waterford recently entrusted to the Tilbury Contracting and Dredging Company, Ltd., London, a contract for the deepening of a big grain berth in the port, which work involved rock-breaking and dredging. A Lobnitz rock-cutter, a bucket dredger and steam hopper plant were employed upon the work, which has just been successfully completed.

The Commissioners have now entrusted a further contract of a value in excess of £20,000 to the Tilbury Contracting and Dredging Co., Ltd., for the deepening of that part of the River Suir known as The Ford. The work will again involve both rock-breaking and bucket dredging, and it is anticipated that it will take at least nine months to complete the contract, which has just been commenced.

The Port of London Authority.

Atlantic Passenger Ships in London.

THE extent of the trade between London and the United States and Canada (North American ports) is indicated by the presence simultaneously in the London docks recently of 17 ships from these ports. The vessels included six well-known Atlantic passenger and freight ships—the White Star "Calgaric" and "Megantic," the Cunard "Alaunia," "Ausonia," and "Lancastria," and the A.T.L. "Minnekahda," representing 167,170 net register tons.

The New Motor Ship "Rangitata."

The new motor ship "Rangitata" has arrived in the Royal Albert Dock, London, from the Clyde, where she was built by J. Brown and Co., Ltd. The vessel possesses several special features. By a special arrangement of bulkheads the vessel has one load-line only for both summer and winter seasons instead of two, as is usual. The twelve lifeboats are fitted and mechanically propelled, and all winches and auxiliary deck gear are operated by electricity.

The "Rangitata" is 16,737 net registered tons, and she has accommodation for 110 first class, 90 second class and 200 third class passengers. Besides general cargo, the vessel will carry perishable goods, for which she has about 450,000 cubic feet insulated space.

The "Rangitata" left London on her maiden voyage on November 21st for Wellington, New Zealand, via Panama.

Vessels using the Port.

During the week ended November 1st, 572 vessels, representing 348,756 net register tons, entered and left the Port of London. Of these, 321 ships (219,949 net register tons) were engaged in foreign trade and 251 (128,807 net register tons) were engaged on coastwise trade.

Compared with the previous week the vessels which used the Port Authority's docks show an increase of 49 ships, representing 77,841 net register tons.

Passengers and Cargo for India.

India is taking large consignments of British goods at the present, and London shipowners are finding no difficulty in filling all available cargo space in their vessels sailing for Indian ports.

Every berth on board the s.s. "Domala" bound for Bombay and the s.s. "Mandala" for Calcutta, which left the London Docks on November 2nd, was booked and all cargo space was fully occupied.

Returns of the Port.

The returns of the Port of London Authority indicate that the export position is brighter now than at any time since 1920. During the six months ended September last the quantity of exports passed over the quays of the Port of London Authority was six per cent. greater than during the same period in 1928, equivalent to over 20,000 tons.

Protecting the Warehouses.

Patrolling the docks in foggy weather is a somewhat hazardous job. It is not always possible to distinguish between concrete and "thin air," but fog or no fog, the Port Authority's Police have to keep up a ceaseless watch, for there are sheds and warehouses to guard containing hundreds of thousands of pounds worth of merchandise. The safety of these men is not overlooked. As soon as the fog comes, guard chains are installed at the water's edge, and each man on duty is served out with a life-saving jacket of kapok construction. In view of the prospect of fogs at this period of the year, the Authority has recently carried out exhaustive buoyancy tests in dock waters of these life-saving jackets, and the results have proved satisfactory. As an additional measure of safety the Authority has arranged for the normal quantity of kapok in these jackets to be increased.

It is found that kapok has a supporting force of three and a half times that of cork per pound, and these life-saving jackets maintain the wearer, even if unconscious, in a vertical position in the water.

Improvements at Dagenham.

Much activity is being shown by the Ford Motor Company at the site of their new works at Dagenham. The Port of London Authority has approved plans submitted by the Company for the construction of a jetty 1,902-ft. long and 51-ft. wide, together with other works along the river frontage of the property. The proposed improvements will enable the Ford Motor Company to convey by means of river craft the large quantities of material and plant to be used in their factories and to effect waterside deliveries of the manufactured article.

General Notes.

The Port of London Authority has accepted the offer of Mr. J. Lawson, a director of the well-known firm of merchants, Messrs. Balfour, Williamson and Co., to instal in the docks six drinking water fountains for the convenience of dock workers.

In twelve months the Port of London Authority's motor ambulances were used on 1,305 occasions in connection with accidents or cases of illness. This number included a certain proportion of the Authority's own employees, but the majority of cases attended were employees of shipowners—stevedores, tenants, contractors, lightermen, and others.

To facilitate the movement of shipping in the Upper Pool, the Port of London Authority has come to an arrangement with the Commissioners of Customs and Excise and the shipowners concerned, whereby the Customs examination of vessels bound from foreign ports to wharves above London Bridge will take place as far as possible in the lower reaches of the Thames instead of in the Upper Pool as formerly.

The Port of London Authority has arranged for the exhibition throughout South Africa of a film depicting the activities and commercial attractions of the Port of London. The arrangement has been made through the Authority's South African representative, Mr. E. J. Hartley, whose headquarters are in Cape Town.

The first consignment of the new season's dates for the Christmas trade, consisting of 5,338 tons, has just arrived at the South-West India Dock from the Persian Gulf by the s.s. "Bandar Shahpour."

A small consignment of leaf tobacco, grown in New Zealand, has arrived at the Royal Albert Dock. This is believed to be the first occasion on which New Zealand tobacco has been sent to London.

This year's wool ship race from the Antipodes was won by the motor ship "Port Alma," now in the King George V. Dock, London. This vessel made the voyage from Sydney to Dunkirk, her first port of call, in the record time of 33 days.

More Moorings in the Thames.

Concurrently with the steady increase in the tonnage of shipping using the docks of the Port of London, there has been an increased demand for facilities at public moorings in the river for vessels requiring to discharge or load part cargoes.

The Port of London Authority have therefore decided, subject to local conditions as regards dredging operations, etc., to increase the capacity of certain of the public moorings at Greenwich, Charlton and Woolwich. In addition, new mooring berths are proposed in Woolwich Reach and at Swanscombe.

The Thames.

Observations over a period of years have revealed some interesting changes in the tidal conditions of the River Thames. It appears that there has been a slight increase in the range of tides throughout the Estuary, the mean range at Southend having increased approximately four inches since 1925.

There is also a shortening in the time of travel of wave between Southend and London Bridge, the tide at high water at London Bridge now arriving four minutes earlier than in 1925. At low water the acceleration amounts to as much as eight minutes. It has also been observed that the tide in the Pool of London is now slightly more symmetrical in rise and fall, and this is ascribed to the effect of dredging.

Port of London Traffic.

During the week ended 15th November, 1,006 vessels, representing 839,969 net register tons, entered and left the Port of London. Of these, 506 vessels (664,303 net register tons) were engaged in foreign trade and 500 vessels (175,666 net register tons) were from and to coastwise ports.

London's Tobacco.

The present stock of tobacco in the Port Authority's Warehouses is 45,450 tons, valued, including Custom's duty, at approximately £50,000,000. Now, in addition, the largest single consignment of tobacco ever brought to London has just arrived at the Victoria Dock by the s.s. "Markhor" from Philadelphia. The parcel consists of 3,734 hogsheads—sufficient for 1,200,000,000 cigarettes.

*The Port of London Authority—continued.**The "Thomas Wiles."*

A new floating pneumatic grain elevator shortly to be delivered to the Port of London Authority is to be named the "Thomas Wiles," after the Rt. Hon. Thomas Wiles, P.C., a member of the Port of London Authority who is closely associated with the grain and flour trade of the port.

London's Shipping Traffic.

During the week ended 22nd November, 1,095 vessels representing 956,924 net reg. tons arrived at and departed from the Port of London. Of these 610 vessels (776,375 net reg. tons) were engaged in foreign trade and 485 vessels (180,549 net reg. tons) were engaged in coastwise trade.

The Docks at Hull.

THE improvements proposed by the London and North Eastern Railway Company at their Hull docks in fulfilment of the undertaking given to the Chancellor of the Exchequer in the late Government in connection with the expenditure of the capitalised value of the abolished tax on first-class passenger fares, have not met with complete approval of the commercial and shipping interests. The scheme so far as it relates to Hull purposes to adapt the coal shipping appliances at the principal docks to enable 20-ton wagons to be dealt with, and the provision of extra coal sidings in the Doncaster area. While this is acceptable as it stands the strongly expressed opinion is that it does not go far enough and is totally inadequate to meet the present urgent requirements of the port. At the November meeting of the Hull Chamber of Commerce and Shipping the President (Sir Arthur J. Atkinson) said that the Chamber would have been better pleased had the proposal been to complete the King George Dock, and to provide more grain silos, etc. Mr. W. M. Good, Chairman of the Shipping Committee suggested that the Chamber should pay regard to the recommendations of the Shipping Committee which they urged might be carried out in conjunction with the Government's unemployment plans. These recommendations are (a) Completion of the King George Dock by the construction of the additional "arms" left undone; (b) pit wood trade to be removed to the King George Dock, leaving the Victoria and Alexandra Docks for the sawn-wood trade; (c) inter-rail communication between the Alexandra and Victoria Docks; (d) additional grain silos at the King George Dock; (e) provision of floating elevators and automatic weighing machines; (f) repair of shed floorings and warehouses, and the provision of cranes on the old dock estate. There are also several other recommendations referring to the old docks used by the home and coasting trades, including the provision of up-to-date coaling appliances at the Humber Dock and the extension of the Riverside Quay to give more accommodation for the import fruit trade.

Mr. Good commented that when they considered that at Grimsby the L. and N.E.R. had already agreed to expend £100,000 purely and solely on the re-building of transit sheds and the provision of electric cranes, and that the Company proposed no work of that description at Hull. One must come to the conclusion that so far as Hull was concerned its general shipping trade was of very little interest to the directors and managers of the Company. One of the main reasons for this in the mind of the ordinary man was that at Grimsby the L. and N.E.R. were also the chief owners of the steamers using its sheds and that they were looking after their own children rather than after the bigger port of Hull where they had not the same interest as ship owners. In inviting the chamber to support the Shipping Committee's recommendations seeking to get the docks and the appliances brought up to a normal standard, Mr. Good said that the general facilities, with the exception of those at the King George Dock, were far behind those of any other port in the country. It was that which was causing so much delay and congestion in transit. In moving a resolution to support the recommendations of the Committee, Mr. Good added that it was apparently foolish, but the L. and N.E.R. did not seem to realise that the more facilities they gave the cheaper the work could be done and the more trade would be attracted to Hull. Mr. Edward Dumonlin seconded the resolution which after some discussion was unanimously adopted and ordered to be sent to the L. and N.E.R. Company.

The decision of the Hull Corporation to purchase the old Queen's Dock subject to parliamentary sanction was reported to the Chamber and correspondence was read with reference to the representations made to them on the question of alternative accommodation for the trades that would be affected by the closing of the Dock. The President remarked that there was no assurance given with regard to providing alternative accom-

modation, and Mr. Dumonlin said that the Chamber would have to wait until the Parliamentary Bill was deposited before they would be able to take decisive action.

Sir Douglas Fox and Partners, consulting engineers, London, have been appointed, at a fee of four thousand guineas, to advise on a scheme for the tunnelling or bridging of the River Humber in the vicinity of Hull. The appointment has been made by the Executive Committee appointed by the various authorities and towns interested presided over by Lord Devamore. The terms of reference to the consulting engineers are that within a period of three months they shall prepare a report stating what in their opinion would be the most suitable and economic method, and the geographical position, of affording transport communication between the East Riding of Yorkshire and North Lincolnshire in the vicinity of Hull for rail, road and pedestrian traffic. The report is also to include a statement as to the comparative merits of a bridge or tunnel and an estimate of the respective costs, and the preparation of preliminary plans, etc., of a scheme which they recommend. The Committee ask for an estimate of the probable time occupied in the work of construction. The Town Clerk of Hull was instructed to collect the necessary data for the presentation of a case to the Ministry of Transport for conservative and financial support.

The improvements to be undertaken by the Bridlington Harbour Commissioners at Bridlington (East Yorkshire) are estimated to cost £15,000 and include the reconstruction of the existing jetty at a cost of £5,500; the provision of a new quay and wharf for landing fish, £6,000; the widening and repair of the wooden jetty £1,500 and dredging the bar, £2,000. The Development Commissioners have approved the scheme and the Treasury has promised to contribute a grant of £7,000 for the first two items provided that the Harbour Commissioners could provide £3,500. The Commissioners hope to borrow the latter sum but are of opinion that a certain amount of dredging should be done and have made an application to the North Eastern Sea Fisheries Committee for financial assistance towards the cost of dredging, and a special Committee of that body has been charged to carefully consider the application.

It is pointed out that Bridlington is a harbour of refuge during north-easterly gales and that its use is not confined to vessels belonging to Bridlington. Whithy is also anxious for consideration and some time ago put forward a scheme to join with Scarborough and Bridlington to provide a dredger for the three ports; but the latter two threw over the proposal.

Lighthouses, Beacons, etc., wanted for Portuguese East Africa.

His Majesty's Consul-General at Lourenço Marques (Mr. J. Pyke) reports that it is proposed to construct and equip additional lighthouses, beacons, light buoys, etc., on the coast of Portuguese East Africa.

Firms desirous of offering equipment of British manufacture can obtain further particulars upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. Reference number A.X. 8861 should be quoted.

The Junior Institution of Engineers.

The Junior Institution of Engineers are holding an Informal Meeting on Friday, 6th December, at 39, Victoria Street, S.W.1, at 7.30 p.m. when a lecture, "The Demolition of Lambeth Bridge," will be given by A. B. Gowring, of Messrs. Dorman, Long, and Co., Ltd. (Slides).

An Inaugural Meeting will be held on Friday, 13th December, at The Royal Society of Arts, John Street, Adelphi, at 7.30 p.m., when the induction of Sir Ernest W. Moir, Bt., as president will take place. There will also be an address, "Some engineering difficulties and how they were overcome," followed by presentation of medals and awards by retiring president, Lieut.-Colonel J. T. C. Moore-Brabazon, M.C.

The Port of New York.

Latest Figures issued by the Bureau of Commerce.

Value of Commerce at the Port.

THE latest available figures issued by the local office of the United States Department of Commerce show that exports through the Port of New York in August, 1929, were above those of the same month of the past year. Exports for the month of August, 1929, amounted to \$143,450,000 as compared with \$139,948,000 for August, 1928. This represents a gain for the Port of New York of 2.5 per cent. as compared with a gain of but 0.3 per cent. for all ports of the United States. Exports for seven of the first eight months of this year have shown increases over 1928.

Imports in August, 1929, through this port amounted to \$168,712,000 as compared with \$154,353,000 for August, 1928, a gain of 9.3 per cent. for the port as compared with 6.6 per cent. for all ports of the United States. This is the eighth consecutive month of this year which has shown an increase over the corresponding month of 1928.

An analysis of commodities exported in July, 1929, from the Port of New York shows that large gains were made over July, 1928, in eight groups. Iron and steel semi-manufactures increased 65 per cent., industrial machinery 50 per cent., books and printed matter 45 per cent., chemicals 40 per cent., rubber manufactures 40 per cent., automobiles and parts 20 per cent., cotton manufactures 19 per cent., and iron and steel manufactures 15 per cent.

Declines for the month were limited to a few groups. Copper manufactures showed the only really large decline, falling off over 80 per cent. Apples, automobile casings, unmanufactured cotton and sugar all showed declines of \$500,000 or less.

Volume of Foreign Trade.

Through the courtesy of the Research Bureau of the United States Shipping Board, the Port Authority has received a detailed tabulation of the foreign trade through each of the major ports of the United States. These figures show that foreign trade through the entire Port of New York District for the calendar year 1928 amounted to 26,110,166 long tons as compared with 24,839,222 long tons in the preceding year, representing an increase of 5.1 per cent.

Measured in tons, exports through the entire Port of New York District for the year 1928 showed a slight decline, while imports showed a gain. Exports for 1928 amounted to 10,857,949 long tons, as compared with 11,434,523 long tons for 1927. Imports amounted to 15,252,217 long tons in 1928 as compared with 13,404,699 for 1927.

The latest figures of the volume of foreign trade through the Port of New York (excepting sub-port data not yet available) for the first quarter of 1929 show an increase of about 18 per cent. over the same quarter of last year; exports show a slight decline, while imports show a substantial increase, due primarily to gains in petroleum and sugar.

Exports for the first quarter of 1929 amounted to 2,248,232 long tons, as compared with 2,336,931 long tons in the first quarter of 1928, representing a decline of 3.8 per cent.

Imports in the first quarter of 1929 amounted to 3,313,110 long tons, as compared with 2,399,564, representing an increase of 38.1 per cent.

Volume of Inter-Coastal Trade.

According to the latest figures on inter-coastal trade, compiled by the United States Shipping Board, the volume of trade between the Port of New York and west coast ports for the first quarter of 1929 showed an increase of 14 per cent. over the same period in 1928. Receipts at the Port of New York from west coast ports for the first quarter of 1929 amounted to 784,403 long tons, as compared with 708,392 long tons in the first quarter of 1928, an increase of 10.7 per cent.

Shipments from New York to west coast ports amounted to 160,680 long tons, as compared with 120,643 long tons, or an increase of 33.2 per cent.

Commerce at Port Newark.

Lumber receipts at Port Newark for August, 1929, showed an increase over those for August, 1928, while general cargo showed a falling off. In August, 1929, 40,433,294 board feet of lumber and 13,914 tons of general cargo were brought in by 53 vessels, barges and lighters, as compared with 31,264,770 board feet of lumber and 33,382 tons of general cargo brought in by 79 vessels, barges and lighters in August, 1928.

Eastbound Lighterage in the Port of New York.

According to the records of the Atlantic States Shippers Advisory Board, eastbound railroad lighterage in the New York terminal area for the first nine months of 1929 showed an increase of 4.8 per cent. over the corresponding period of the past year. Inasmuch as the greater portion of eastbound

lighterage is rail freight moved to shipside for export, this tonnage increase is consistent with the increase in the value of exports given elsewhere in this report.

Grain Exports.

Grain exports through the Port of New York in July, 1929, showed a decline from July, 1928, due again to the falling off in the movement of Canadian wheat through this port. In July, 1929, there were exported through this port 6,793,000 bushels, as compared with 7,440,000 bushels in July, 1928, a decline of 647,000 bushels. Canadian wheat exported in July, 1929, amounted to 4,235,000 bushels, as compared with 5,706,000 bushels in July, 1928, a reduction of 1,471,000 bushels. Exports of all other grains increased.

According to the records of the Atlantic States Shippers' Advisory Board, grain handled in the New York terminal area for the third quarter of 1929 amounted to 3,145 cars, as compared with 4,206 cars for the third quarter of 1928. Apparently the falling off in the movement of Canadian wheat referred to in the preceding paragraph has continued up to September, 1929.

For the entire nine months' period, however, the total grain handled in the New York terminal area showed a slight increase over the same period of the past year. In the first nine months of 1929, a total of 23,184 cars of grain were handled, as compared with 22,731 cars for the same period last year.

Vessel Movements in Foreign Trade.

Vessel movements in August, 1929, showed gains over August, 1928, in both number and tonnage of vessels. Vessel entrances for August, 1929, were 607 and clearances 643, as compared with 589 and 631 entrances and clearances respectively in the same month of 1928.

The tonnage of vessels entering in August, 1929, amounted to 2,613,778, and clearing to 2,832,830, as compared with 2,551,929 and 2,750,610 entering and clearing respectively in August, 1928.

Steamship Passenger Traffic.

According to the latest figures compiled by the United States Shipping Board, steamship passenger traffic through the Port of New York in the first quarter of 1929 increased by 48.7 per cent. over the same quarter of 1928. There were two and a half times as many first-class passengers in the first quarter of 1929 than in the first quarter of the past year.

Passengers arriving from and departing for foreign countries, west coast ports and Possessions of the United States through the Port of New York in the first quarter of 1929 amounted to 192,590, as compared with 129,559 in the first quarter of 1928.

New Ship Construction.

The American South African Line is to have four new passenger and cargo vessels built especially for this trade. The first vessel, "City of New York," was launched at Chester, Pa., on October 19th. She will sail from New York on her maiden voyage about February 1st, 1930. This vessel will be of 9,400 deadweight tons, with a length of 470.8-ft., a beam of 61.6-ft. and a loaded draft of 26-ft. These are to be motor vessels with accommodation for passengers.

The White Star Line announces work on the new 60,000-ton super-liner "Oceanic" has been postponed, and that the Line will concentrate on constructing a new 27,000 ton motorship as a sister ship of the "Britannic." Work on the "Oceanic" will not proceed until the builders have decided on a design and propulsion that will match the "Bremen's" record-breaking performance.

Not to be outdone by its contemporaries in the trans-Atlantic trade, the Ward Line, which has been considering an improvement in its service and facilities for some time, has speeded up its programme. This Line has just announced plans for improving its terminal at the foot of Wall Street. The programme includes the construction of a new two-storey building between Pier 13 and 14, East River, 50-ft. in width from the marginal bulkhead line. The street level of the new building will be used for trucks, and the upper storey for the steamship company's offices. The programme includes the extension of Pier 13 from its present length of 552-ft. to 606-ft., and Pier 14 from 546-ft. to 606-ft. This is to provide ample berthing space for the two new vessels which are now being built, and which will be 508-ft. long and capable of a speed of 20 knots.

Tidewater Coal Receipts at the Port of New York.

For the first nine months of 1929 there were 311,559 cars of coal unloaded at tidewater in the Port of New York, as compared with 311,139 cars for the same period in 1928, an increase of about 0.1 per cent.



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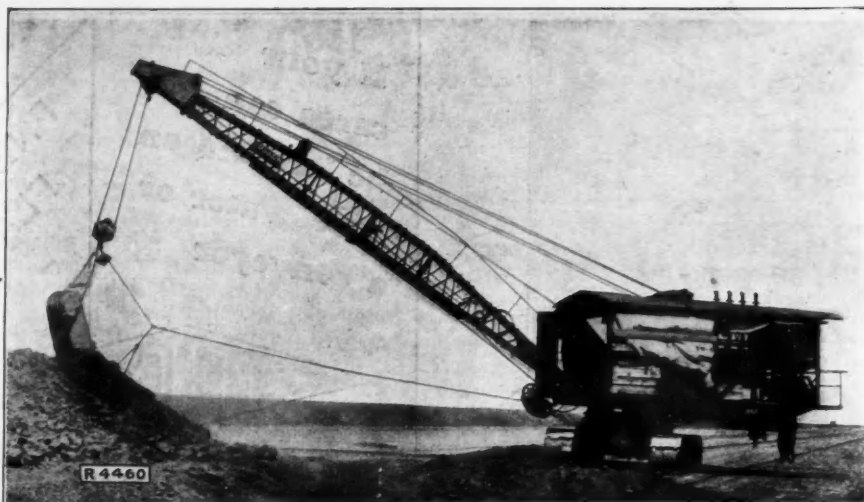


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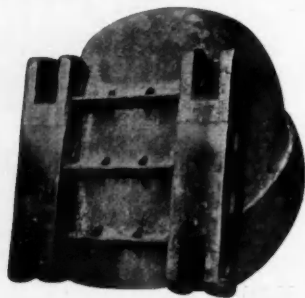
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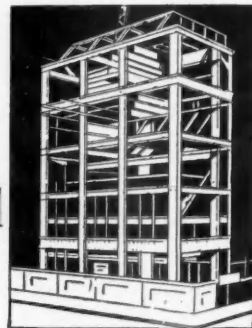
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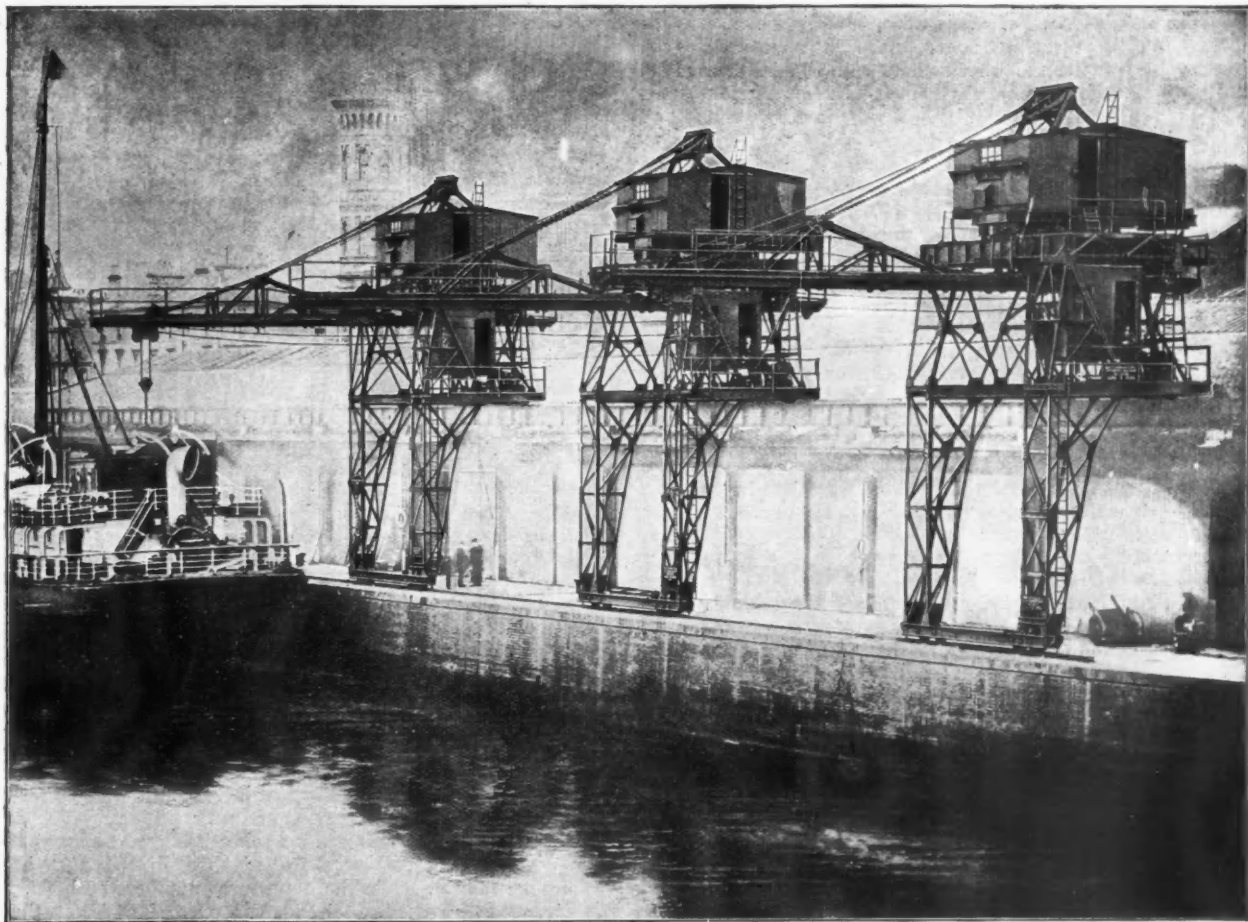
Electrically-operated Transporter Wharf Cranes.

THE accompanying photograph illustrates a new type of electrically-operated transporter crane, three of which have been supplied by Alex. Chaplin and Co., Ltd., Govan, Glasgow, to the order of the Burns and Laird Lines, Ltd., to be used for cargo purposes for that company's Belfast steamers at Broomielaw wharf. Each crane is capable of handling loads of five tons at 30-ft. 6-in. radius, and is arranged with a jenny which traverses the load to the centre of the quay, where it may be discharged on to bogies and thence be transferred to the distributing point.

contained in a cabin built into the leg of the carriage, so as to be clear of deck-houses, etc., and this cabin has windows on each side which give a clear view of the load, while the controls are all within easy reach of the driver.

A timber-framed house, having doors and windows on each side, is built over the machinery. Cast iron ballast blocks are fitted at the tail end, giving the necessary stability.

The cranes, which are well provided with ladders and platforms to give access to the machinery, have now been in use for some time and, so we understand, have given very



The cranes are of the five-motor type, each motion being worked from an independent motor, the current being 3-phase, 25 cycles, 440 volts. The makers point out that the advantage of this type of crane is that, once it is placed in position for working cargo, only two motions are used, viz., hoisting and traversing, and these motions may be used simultaneously and have independent controls. The carriage has a clear opening between its legs of 16-ft. wide and 30-ft. high.

All the motions, except that of travelling, are worked by means of machine-cut worm gear to give a noiseless drive. The travelling gear is driven through machine-cut spur and mitre gear. The worms are of forged steel, case-hardened, and are fitted with ball thrust bearings. The worm wheels have phosphor bronze rims and run in oil in cast iron gear cases. The worm wheel on the skewing gear is fitted with a slipping clutch to prevent shock. The hoisting gear is arranged with a spur change gear, giving speeds of 60-ft. per minute with a 5-ton load, and of 200-ft. per minute with a 2-ton load, the motor being of the slip-ring type and of 40 b.h.p. The traversing, slewing, derricking and travelling gears are each driven by independent reversing motors, each of 7 b.h.p.

The point of the jib can be slewed 12-ft. 6-in. on each side of the centre line of the crane, which allows of any part of the hatch being plumbed. Under working conditions the jib is supported by two short-link crane chains, fitted with adjusting screws, and can be raised to clear the ship's masts or any other obstruction.

The hoisting and traversing motions are equipped with a contactor control panel and master controllers, the other controllers being of drum type. All the motions are fitted with electric brakes, released by solenoid and applied by gravity, while the hoisting, traversing and derrick motions have shunt-limit self-resetting switches. Spring buffers are arranged at each end of the traverse limit of the jenny. The controls are

satisfactory results. They were built under the supervision of Mr. S. B. O'Neill, mechanical engineer to the Coast Lines, London, and they were tested and passed by him.

We may add that cranes similar to the foregoing, but of the fixed type, are being built by Messrs. Chaplin for the Belfast Steamship Co., Ltd., for its Belfast and Liverpool berths.

Canada's Overseas Trade.

The thirty-seventh annual report of the Canadian Department of Trade and Commerce, just issued, covers the work of the fiscal year ended March 31st, 1929.

The Deputy Minister, in his Report, calls attention to the fact that during the period named Canada's total overseas trade reached a value of \$2,654,452,000, a record figure surpassing that for the calendar year 1917, when the total reached \$2,639,726,000 at very much higher price-levels. Import trade during the past fiscal year was valued at \$1,265,679,000, somewhat less than the record total of 1920 amounting to \$1,336,921,000. Exports in 1928-29 were valued at \$1,388,773,000, a total higher than that for any previous fiscal year except that of 1917-18, when war-time prices prevailed. Canada's physical volume of imports and exports was therefore greater last year than for any previous twelve-month period in the history of the Dominion.

The Deputy Minister calls attention to the fact that throughout the calendar year 1928, Canada was fifth among the nations of the world in respect of the value of her aggregate trade and as regards imports and exports, being surpassed only by the United States, the United Kingdom, Germany and France, all of which countries have a much larger population. On a per capita basis Canada takes second place in export trade, being exceeded only by New Zealand.

Port of Southampton Topics.

Increase in Sailings of Canadian Pacific Co.

THE continued growth of Southampton as a passenger port is indicated by the intention of the Canadian Pacific Company to increase their list of sailings from this port next season. There will be 59 sailings from Southampton between April 17th and November 15th, and almost as many arrivals. This is an increase on this season's activity, for the sailings in the corresponding period numbered 48. No fewer than ten of the finest vessels in the Company's fleet will be seen at Southampton next season. The three Atlantic "Empresses," the "Empress of Scotland," "Empress of Australia," and "Empress of France," will be associated once more in maintaining the express service, while the intermediate run will be carried on by the "Montclare," "Metagama," "Montcalm" and "Montrose." In addition there will be two of the new "Duchess" class liners appearing at the port, as was the case this summer. These will be the "Duchess of Atholl" and the "Duchess of Richmond." The event of the season will be the sailing of the splendid new "Empress of Japan," the 25,000 ton vessel which is under construction by the Fairfield Shipbuilding and Engineering Co., Ltd., of Govan. This vessel is being built for the Company's Pacific service, but after her delivery she will make a round trip to Quebec. She will commence this voyage from Liverpool, but will return to Southampton, after which she will set out from this port for the Pacific, her destination being Hong Kong, via the Suez Canal.

The new "Empress of Britain" is scheduled to enter the Southampton-Quebec service in the 1931 season. This vessel is to be a super ship of over 40,000 tons, and with a speed of 25 knots. She will be a luxury ship in every sense of the word and will be a great addition to the already splendid Canadian Pacific fleet which now makes Southampton its home or port of call.

No Reduction in Harbour Dues Yet.

Southampton Harbour Board have decided that it is inadvisable to consider any reduction in the harbour dues at present, having regard to the fact that the Board contemplate eventually widening the channel into the port to 1,000-ft., and increasing the depth to 40-ft. The Chairman of the Finance Committee (Alderman F. A. Dunsford, J.P.), said their policy was to see that the port and harbour of Southampton should be second to none in the country. At their last meeting the Harbour Board adopted, subject to confirmation by the Ministry of Transport, new by-laws under the Petroleum (Consolidation) Act of 1928, for the carrying and use of petroleum in the port. The by-laws are based on the Port of London Authority rules.

S.S. "Columbus" to Call at Plymouth.

The North German Lloyd, who, it will be recalled, decided a month or two ago to concentrate the whole of their British services at Southampton, thereby abandoning the homeward calls which have been made at Plymouth since the war, have now found that in order to get the most out of their new express service it is advisable for the "Columbus" to make her first call on her way to Bremen at Plymouth. The "Columbus" will be the slowest of the three ships which will maintain the Company's express service across the Atlantic, although she will very considerably reduce the time she has hitherto occupied between this country and New York; in fact, she will save practically two days as a result of the installation of entirely new machinery. This installation work has kept her off the service for some months, but is now approaching completion. The vessel was originally intended to cross the Atlantic in about seven days. Engine trouble, however, caused this time to be lengthened to about eight days, but owing to the fact that there was no other vessel of substantial size in the fleet available to take her place it was not thought advisable to take her off the service in order to make that trouble good. With the arrival of the "Bremen" the "Columbus" was taken off the service for the installation of new machinery. She will reappear at Southampton on December 15th and the fact that she is due in New York on the 21st indicates the substantially additional speed which will be got out of her. It has been found that on the homeward run it is doubtful whether she can make Cherbourg first and then Southampton on the same day, and for that reason it has been decided that she shall make her first call at Plymouth and then go on to Cherbourg, thus following the example set by the Cunard in regard to the "Mauretania." This, however, is the only case in which the homeward call will be made at Plymouth. All other boats making a call at a British port are scheduled to use Southampton both outward and homeward.

The "Bremen" uses Floating Dock Again.

The "Bremen" has been an unexpected guest at Southampton this month. She came to the port in order to be accommodated on the Southern Railway Company's 60,000 ton floating dock for the purpose of having the under water portions of her hull painted. It was the second occasion on which this floating dock has been used by the "Bremen." Before entering the service, earlier in the year, she was accommodated on the "floater" to be painted and thoroughly examined after completing her trials. Since then she has called regularly in Cowes Roads on her outward and homeward voyages between Bremerhaven and New York. Her trip to Southampton for dry-docking will be a special one.

The fact that the "Bremen" came to Southampton for the work is a matter for congratulation on the efficiency of the port. There was keen competition on the part of Hamburg and Havre to get the work, and the fact that Southampton was successful has given much pleasure in the port. It is understood that the reason Hamburg was not chosen was that the owners of the "Bremen" were not anxious that she should navigate the long and winding channel of the Elbe, which has now nothing like the depth of water which was there in pre-war days, when the port was the terminal of the "Imperator" and the "Vaterland" of the Hamburg-America Line, and the intended terminal of the "Bismarck" (now the "Majestic") of the same company.

It is interesting to note that the "Bremen," the biggest German vessel, followed, in the occupation of the floating dock, the "Belgenland," the biggest Belgian vessel, which has been overhauled prior to her world cruise.

October Statistics Satisfactory.

While there were some decreases compared with the figures for the corresponding month of last year, the October statistics for Southampton Docks are on the whole very satisfactory. The number of vessels inward fell from 299 to 292 and outward from 295 to 284, but the gross and net tonnage figures both showed a substantial increase. The gross tonnage inward rose from 1,439,893 to 1,605,679, and outward from 1,321,161 to 1,503,918. The net tonnage totals were equally gratifying, the increases under that heading being 94,141 inward and 101,491 outward, the respective aggregates being: inward 847,908 and outward 796,315.

Inward cargo dropped by 11,506 tons, the total being 52,522 tons, but outward there was an increase of 5,385 tons, the total being 56,870. The passenger traffic still showed a favourable balance, the increase inward being 525, and outward 1,363. Altogether 12,834 travellers passed through the port inward during the month, while the departures numbered 18,566. The trooping movements through the port were less heavy than in October last year, but this stands for little as far as the trade of the port is concerned. The movements are necessarily irregular and so cannot be taken into account in the monthly traffic figures.

Change in White Star Line Services.

An interesting change is foreshadowed in the new sailing list of the White Star Line, inasmuch as the "Arabic," which for some years has operated in connection with the Red Star Line from Southampton, is to return to her original flag and sail from Liverpool in conjunction with the "Albantic," "Laurentic" and "Doric," to Canada. She will be based on Liverpool throughout the whole of next season and it is understood that the "Regina," a vessel of 16,500 tons, hitherto operating from Liverpool, will be transferred to the Red Star Line service between Antwerp, Southampton and New York.

M.V. "Rangitata" calls at Southampton.

The new motor vessel "Rangitata" (17,000 tons), which has been built for the New Zealand Shipping Company, Ltd., called at Southampton on November 22nd on her maiden voyage to Wellington. The Company ordered three vessels of this class, and the "Rangitata" is the second of the trio to make her appearance at the port, the "Rangitiki" having called earlier in the year. The third, the "Rangitane," has not yet been delivered, but she will make her maiden voyage in the course of a few weeks. The three vessels are the first motor ships built for the New Zealand Shipping Co. The "Rangitata" was well booked for her maiden voyage, and those travelling in her included Sir James Mills (Chairman of the Union Steamship of New Zealand) and Mr. J. H. C. Bond (Dominion Superintendent of the New Zealand Shipping Co.). A party of boys emigrating under the New Zealand sheep owners' scheme were also on board.